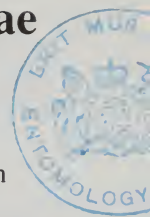


# A revision of some Afrotropical genera of Eucoilidae (Hymenoptera)

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## Synopsis

Eight genera comprising 50 Afrotropical species are revised. Two genera (*Angustacorpa* and *Sirenes*) and 40 species are newly described; the primary types of 14 nominal species have been examined. Amendments to the key to genera (Quinlan, 1986) and a checklist are included.

## Introduction

In this second part of a revision of the Afrotropical Eucoilidae a further 8 genera and 50 species are dealt with, including 2 new genera and 40 new species. My key to genera (Quinlan, 1986) has been amended to include the newly described *Angustacorpa* and *Sirenes*, and *Emargo* Weld, here transferred from the Figitinae. During the preparation of this paper all accessible type specimens have been examined and redescribed. When type material was not available the position of the nominal species concerned is discussed in relation to other taxa.

Weld (1960) originally placed *Emargo* in the subfamily Figitinae and stated that it differed from all other figitines in having the fore wing deeply emarginate. This character was otherwise known to occur only in the eucoilid genus *Kleidotoma*. Examination of the type species *Emargo eciton* shows it to possess a scutellar cup, although this is not of the usual form (Fig. 51). Weld's placement of the genus was influenced by the relative lengths of the gastral tergites (i.e. tergite 2 shorter than 3, see discussion p. 181).

Apart from the eight genera dealt with here and the ten dealt with in my earlier paper (Quinlan, 1986) there are at least three further genera of Eucoilidae (*Trybliographa*, *Daruna* and *Ganaspis*) in the Afrotropical region.

## Material examined and terminology

The material on which this paper is based has come from the same sources as that included in my two previous papers on the Afrotropical Cynipoidea (Quinlan, 1979, 1986). Terminology is as indicated in those papers.

## Depositories

Type depositories are abbreviated in the text as follows.

AM	Albany Museum, Grahamstown
BMNH	British Museum (Natural History), London
MA	Musée d'Amiens, Amiens
MNHN	Muséum National d'Histoire Naturelle, Paris
MNHU	Museum für Naturkunde der Humboldt Universität, Berlin
MRAC	Musée Royale de l'Afrique Centrale, Tervuren
SAM	South African Museum, Cape Town
USNM	United States National Museum of Natural History, Washington, D.C.
ZI	Zoologiska Institution, Lund
ZSBS	Zoologische Sammlung des Bayerischen Staates, Munich

## Classification

Reference to my earlier paper (Quinlan, 1986) will aid appreciation of taxonomy, classification and relationships of the genera dealt with here. The affinities of *Bothrochacis* and *Eucoila* are also treated by Nordlander (1981, 1982). *Diglyphosema* is placed by Nordlander (1982) in the *Gronotoma*-group of genera (*Nordlanderia* etc). Excepting *Zaeucoila*, a Neotropical genus not examined by me, I agree that *Diglyphosema* is related to this group. All five genera have a plesiomorphic form of pronotal plate (i.e. it does not project forward) which is similar to that found in the Figitinae and the cynipine genera *Aulacidea* and *Aylax*. I have examined *Amphiglyphosema*, a genus erected by Benoit in 1956, and consider it to be congeneric with *Diglyphosema*, thus making it the first record of a *Diglyphosema* from the Afrotropical region. *Glauraspidia* is placed by Nordlander (1982) in the *Chrestosema*-group, comprising *Chrestosema*, *Glauraspidia*, *Pseudopsichacra*, *Odonteucoila*, *Dieucoila*, and *Leptolamina*. At present two species of *Glauraspidia*, newly described here, are known from the Afrotropical region. The new genus *Sirenes* is very closely related to *Glauraspidia* but differs in the sculpture of the head, mesoscutum and mesopleuron, the radial cell of the fore wing and the form of the antenna in both sexes. The characters common to both are the absence of a complete mesopleural suture, the dense pubescence on either side of the pronotal plate and entire metapleuron, the density of the pubescence on the propodeal area and the dense ring of felt-like pubescence at the base of segment one of the gaster.

*Angustacorpa*, newly erected, has a projecting pronotal plate with the lateral foveae between the anterior and posterior parts fused or closed (Fig. 11) as in *Stentoriceps*, *Rhoptromeris* and *Trichoplata*. It is distinguished, however, on the strongly compressed head and thorax (Fig. 4) and the position of the antennal sockets (Fig. 1). The genus *Leptopilina* has been the subject of a cladistic analysis by Nordlander (1980). He considers it to belong to the *Rhoptromeris*-group of genera comprising *Rhoptromeris*, *Cothonaspis*, *Trichoplata* and *Leptopilina*. *Leptopilina* and *Cothonaspis* have very similar pronotal plates (i.e. the foveae on either side of the medial bridge are open on the lateral margins and not fused laterally as in *Trichoplata* and *Rhoptromeris*). *Leptopilina* has a short thorax, the compound eyes large and the head constricted behind the eyes. *Cothonaspis* has an elongate slender thorax and the compound eyes are small. *Emargo*, as stated above, is considered for the first time to be a eucoild and is transferred from the Figitinae (see p. 181).

## Checklist of Afrotropical Eucolidae included in this paper

### **EUCOILIDAE** Thomson, 1862

#### **ANGUSTACORPA** gen. n.

- apsus* sp. n.
- persa* sp. n.
- prodicus* sp. n.
- triton* sp. n.

#### **BOTHROCHACIS** Cameron, 1904

- Stirenocoela* Cameron, 1910
- Ditrupaspis* Kieffer, 1910
- Salpictes* Kieffer, 1913

#### **erythropoda** Cameron, 1904

- striaticollis* (Cameron, 1910)
- semirufa* (Kieffer, 1910) **syn. n.**
- stercoraria* Bridwell, 1919 **syn. n.**

#### **rufiventris** (Kieffer, 1913)

#### **serratepilosa** Benoit, 1956

#### **DIGLYPHOSEMA** Foerster, 1869

- Amphiglyphosema* Benoit, 1956 **syn. n.**

#### **latesulcatum** (Benoit, 1956) **comb. n.**

#### **utica** sp. n.

#### **EMARGO** Weld, 1960

- ascia* sp. n.
- cantus* sp. n.
- capito* sp. n.
- laverna* sp. n.
- matius* sp. n.
- micipsa* sp. n.
- numa* sp. n.
- palloris* sp. n.
- peleus* sp. n.
- pexus* sp. n.
- themis* sp. n.
- vacuna* sp. n.

#### **EUCOILA** Westwood, 1833

- Psilodora* Foerster, 1869

- Lytosema* Kieffer, 1910

- Psilodoropsis* Hedicke, 1913

#### **bantia** sp. n.

#### **camerounensis** Risbec, 1956

#### **erinna** sp. n.

#### **marina** sp. n.

#### **veleda** sp. n.

#### **GLAURASPIDIA** Thomson, 1862

- Aglautoma* Foerster, 1862

- Apistophyza* Foerster, 1869

- Diranchis* Foerster, 1869

#### **casca** sp. n.

#### **scyphus** sp. n.

#### **LEPTOPILINA** Foerster, 1869

#### **apella** sp. n.

#### **atraticeps** (Kieffer, 1911)

#### **boulardi** (Barbotin, Carton &

- Kelner-Pillault, 1979)

- mahensis* (Kieffer, 1911) (*Charips*)

- secondary homonym

#### **fannius** sp. n.

#### **faunus** sp. n.

#### **heterotoma** (Thomson, 1862)

#### **itysp.** n.

#### **mahensis** (Kieffer, 1911) (*Erisphagia*)

#### **misensus** sp. n.

#### **pisonis** sp. n.

#### **syphax** sp. n.

#### **thetus** sp. n.

#### **vesta** sp. n.

#### **victoriae** Nordlander, 1980

#### **SIRENES** gen. n.

#### **floccus** sp. n.

#### **orbilus** sp. n.

#### **silenus** sp. n.

#### **sinis** sp. n.

#### **spio** sp. n.

#### **steropes** sp. n.

#### **syrinx** sp. n.

#### **syrtes** sp. n.

## Amendments to key to genera of Afrotropical Eucolidae

The three genera here added to the Afrotropical fauna can be accommodated in the key to genera (Quinlan, 1986) as follows.

At couplet 8:

- 8 Pronotal plate viewed frontally with narrow or obsolete medial bridge, foveae closed laterally (Fig. 11).

Scutellar disc sharply conical, sometimes almost spine- or beak-shaped, overhanging propodeum (Fig. 10); ♀ antenna clavate-subclavate or with segment 4 longer than 3, weakly curved on inner margin, sometimes swollen distally; ♂ antenna with segment 3 shorter than 4, 4 longer than each of the following segments; radial cell of fore wing open or closed (Figs 13, 14) .....

- Pronotal plate viewed frontally with a wide medial bridge, lateral foveae open, not fused externally (e.g. Fig. 27). .....

- 8A Head and thorax viewed dorsally strongly compressed laterally; head in lateral view wedge-shaped, in front view with antennae set at the middle (Fig. 1).

**ANGUSTACORPA** gen. n.

8A

9



- Head and thorax viewed dorsally not laterally compressed; head not wedge-shaped in lateral view, antennae set above the middle (between the upper margins of the eyes) (Fig. 2).

**TRICHOPLASTA** Benoit

At couplet 16:

- 16 Fully winged or brachypterous, apex of wings either incised, arcuate or truncate, not rounded, cubitus (*M*) not distinct, radial cell open on wing margin; tergite 2 of gaster either shorter or longer than tergite 3 in lateral view (Figs 22, 52) ..... 16A
- Fully winged, never brachypterous, apex of wing rounded, rarely truncate, never incised, radial cell of fore wing open or closed; tergite 2 of gaster longer than 3 in lateral view (e.g. Fig. 193) ..... 17
- 16A Tergite 2 of gaster shorter than tergite 3 (Fig. 52); fore wings strongly incised, radial cell open on wing margin, veins thick (cf. Figs 65, 67); scutellar cup weakly defined (cf. Fig. 60); mesopleural furrow absent. .... **EMARGO** Weld
- Tergite 2 of gaster the largest in lateral view (Fig. 22); fore wings either incised, arcuate or truncate, radial cell distinctive, vein *R*<sub>1</sub> only thickened at apex, near margin of wing, *Rs*+*M* usually absent (Fig. 20) or wings short not extending to apex of gaster; scutellar cup distinct but small, not extending to apex of longitudinally striate disc which is either rounded or conical, spine- or beak-shaped; mesopleural suture percurrent. ....
- KLEIDOTOMA** Westwood
- 17 Mesopleural suture either absent or indistinct (Fig. 182); frons prominent in ♂, less so in ♀; wings in ♂ of normal length (generally shortened in British specimens); scutellar cup raised above level of scutellar disc which is striate to reticulate-rugose; sides of pronotal plate and propodeum with dense tufts of pubescence (usually white); tergite 2 of gaster with dense felt-like ring of pubescence; antenna of ♀ filiform or subclavate ..... 17A
- Without the above combination of characters; mesopleural suture generally present; pronotum and propodeum without dense felt-like tufts; tergite 2 of gaster with hairy ring variable in density of pubescence; ♀ antenna usually clavate, ♂ filiform, 3rd and 4th segments sometimes modified ..... 18
- 17A Head, mesoscutum and mesopleuron finely sculptured; radial cell of fore wing completely closed on margin (Fig. 188); pronotal plate viewed dorsally, rectangular (Fig. 191).
- SIRENES** gen. n.
- Head, mesoscutum and mesopleuron smooth and polished; radial cell of fore wing generally open on margin (Fig. 96); pronotal plate rounded on margins (Fig. 95).

**GLAURASPIDIA** Thomson**ANGUSTACORPA** gen. n.

Type species: *Angustacorpa apsus* sp. n.

**DIAGNOSIS.** ♀ antenna 13-segmented, clavate and set medially between the eyes; ♂ antenna 15-segmented, filiform with a modified third segment (Fig. 3). Head viewed laterally wedge-shaped, viewed dorsally strongly compressed; face long and narrow, eyes closer together than the height of an eye measured medially, face smooth and polished; malar groove distinct; ocellar region with long scattered hairs (Fig. 1). Pronotal plate with enclosed lateral foveae, one on either side of the medial bridge. Mesoscutum smooth and polished without trace of notauli, strongly compressed laterally; scutellar foveae polished, round, lateral bars smooth; scutellar disc long, conical, apically rounded, surface reticulate-rugose, overhanging propodeum; scutellar cup elliptical, not extending to apex of disc, apical margin of cup with a fovea, outer rim of cup with a number of small pits or foveae (Fig. 4). Mesopleuron smooth and polished, mesopleural suture complete; metapleuron weakly ridged, anteroventral cavity pubescent; propodeum coarsely sculptured on dorsal and lateral surfaces. Segment 1 of gaster short and crenulate, obscured by a ring of dense pubescence at base of tergite 2; segments 2–5 of gaster visible in lateral view, tergite 2 the largest (Fig. 5). Legs slender, fore and mid coxae hairy. Wings long and narrow, surfaces pubescent, margins with a fringe of hairs, radial cell of fore wing long and narrow, completely closed on wing margin (Fig. 14).

**DISTRIBUTION.** Kenya, Zaire.



**Key to species of *Angustacorpa* gen. n.****Females**

- 1 Antennal club 6-segmented (Fig. 6) (distinct, rhinaria pronounced).  
Apex of tergite 2 sparsely punctate, tergites 3–5 finely punctate (Fig. 5). .... ***apsus* sp. n.** (p. 175)
- Antennal club 7–8 segmented (Figs 7, 8). ..... 2
- 2 Antennal club 7-segmented (distinct, rhinaria weakly indicated); radial cell of fore wing open (Fig. 13).  
Apex of tergite 2 and tergites 3–5 strongly and densely punctate (Fig. 12). ... ***triton* sp. n.** (p. 176)
- Antennal club 8-segmented; radial cell of fore wing closed (cf. Fig. 14). ..... 3
- 3 Antennal segment 3 longer than 4+5, 4 twice length of 5, club segments 3 times as long as wide, club very sharply delimited (Fig. 8), apical segments pale yellow. .... ***prodicus* sp. n.** (p. 175)
- Antennal segment 3 shorter than 4+5, 4 longer than 5, club weakly delimited (Fig. 9), apical segments of antenna dark, basal segments yellow. .... ***persa* sp. n.** (p. 175)

***Angustacorpa apsus* sp. n.**

(Figs 4–6, 14)

DESCRIPTION. ♀ antenna with segment 3 subequal to 4+5, segments 8–13 with rhinaria, forming a club (Fig. 6). Head with long scattered setae; malar grooves percurrent; mandibles tridentate, produced forward in lateral view (cf. Fig. 1); occipital carina distinct on lower margins; ocelli widely spaced in dorsal view. Pronotal plate viewed dorsally with a broad medial bridge (cf. Fig. 11). Scutellar disc tapering apically, not spine-shaped; rim of scutellar cup with six foveae (Fig. 4). Gaster polished, apex of segments 2–5 punctate (Fig. 5). Wing (Fig. 14). Colour: antenna yellow, club segments slightly darker; head and thorax dark chestnut brown; gaster dark dorsally, orange-yellow laterally; legs orange-yellow.

♂ unknown.

**MATERIAL EXAMINED**Holotype ♀, **Kenya**: 15 mls NE. Kisumu, nr Lake Victoria, xi.1979 (*Croft*) (BMNH).Paratypes. **Zaire**: 2 ♀ (MRAC).

REMARKS. Separated from the three other species by the sharply delineated 6-segmented antennal club (Fig. 6).

***Angustacorpa persa* sp. n.**

(Figs 9–11)

DESCRIPTION. ♀ antenna with segment 3 shorter than 4+5, 4 longer than 5, segments 6–13 with rhinaria, forming a weak club (Fig. 9). Head with long lateral setae; malar grooves percurrent; mandibles tridentate, produced forward in lateral view (cf. Fig. 1); occipital carina distinct on lower margins; ocelli widely spaced in dorsal view. Pronotal plate viewed fronto-dorsally with a broad medial bridge (Fig. 11). Scutellar fovea kidney-shaped; scutellar disc beak-shaped, extending past propodeum; scutellar cup long and broad medially, rim of scutellar cup with a few small pits or foveae (Fig. 10). Metapleuron strongly ridged. Gaster segment 1 as broad as long; tergite 2 with a sparse basal hairy ring; tergites 2–4 visible in lateral view; apex of segment 2 and visible parts of 3 and 4 punctate (cf. Fig. 5). Wing (cf. Fig. 14). Coxa and femur with scattered long hairs. Colour: antenna yellow basally, apical segments darker; head, thorax and gaster chestnut-brown; legs orange-yellow.

♂ unknown.

**MATERIAL EXAMINED**Holotype ♀, **Zaire**: Massif Ruwenzori, Kalonge, 2010 m, Riv. Kamashoro aff. Butahu, 10.ii.1953 (*Vanschuytbroeck*) (MRAC).Paratypes. **Zaire**: 2 ♀ (BMNH).

REMARKS. Distinguished from *prodicus* by the relative lengths and shape of the antennal segments. The colour pattern is also different.

***Angustacorpa prodicus* sp. n.**

(Fig. 8)

DESCRIPTION. ♀ antenna short, with segment 3 longer than 4+5, 4 longer than 5, segments 6–13 with rhinaria, forming a distinct club (Fig. 8). Head viewed laterally weakly wedge-shaped, with long scattered

setae; malar grooves percurrent; mandibles tridentate (cf. Fig. 1); occipital carina distinct on lower margins; ocelli widely spaced in dorsal view (cf. Fig. 1). Pronotal plate viewed dorsally with a broad medial bridge (cf. Fig. 11). [Mesoscutum of holotype damaged by pin.] Scutellar fovea kidney-shaped; scutellar disc finely rugose, conical apically, extending past propodeum; scutellar cup long and broad, lateral margins with small pits or foveae (cf. Fig. 4). Mesopleural suture fine; metapleural anteroventral cavity weakly pubescent; propodeal sculpture with long hairs intermingled. Gaster segment 1 not visible in dorsal or lateral views, obscured by ring of pubescence at base of tergite 2, polished; apical third of segment 2 and visible parts of 3–5 finely punctate (cf. Fig. 5). Radial cell of fore wing appearing closed. Legs short and stout; coxa and femur without conspicuous pubescence. Colour: antenna brownish yellow basally, apical segments pale yellow; head and thorax dark chestnut brown; gaster orange-brown; legs yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Kivu, Rutshuru (riv. Fuku), 1250 m, 5.vii.1935 (*de Witte*) (MRAC).

REMARKS. Closely related to *persa* (q.v.).

### *Angustacorpa triton* sp. n.

(Figs 7, 12, 13)

DESCRIPTION. ♀ antenna with segment 3 shorter than 4+5, 4–6 subequal in length, segments 7–13 with rhinaria, forming a club (Fig. 7). Head laterally with long scattered setae; malar grooves percurrent; mandibles tridentate, produced forward in lateral view (cf. Fig. 1); occipital carina distinct on lower margins; ocelli widely spaced in dorsal view. Pronotal plate viewed dorsally with a broad medial bridge (cf. Fig. 11); scutellar fovea kidney-shaped; scutellar disc conical apically, extending past propodeum; surface of scutellar cup with broken striae. Mesopleural suture weak; metapleuron with aberrant ridges indicated, anteroventral cavity without pubescence. Gaster segment 1 short, as broad as long, ridged; tergite 2 with a basal hairy ring; segments 2–5 visible in lateral view; apical third of segment 2 and visible parts of 3–5 with strong punctures (Fig. 12). Fore wing with radial cell open on margin (Fig. 13). Legs stout; coxa and femur without conspicuous pubescence. Colour: antenna brownish yellow; head blackish; thorax and gaster dark chestnut brown; legs brownish yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Mont Hoyo, 1280 m, 7–15.vii.1955 (*Vanschuytbroeck*) (MRAC).

REMARKS. Distinguished from other species by the 7-segmented antennal club and the strongly punctate gaster.

### *BOTHROCHACIS* Cameron

*Bothrochacis* Cameron, 1904: 164. Type species: *Bothrochacis erythropoda* Cameron, by original designation.

*Stirengoela* Cameron, 1910: 180. Type species: *Stirengoela striaticollis* Cameron, by monotypy. [Synonymised by Weld, 1930: 139.]

*Ditrapaspis* Kieffer, 1910a: 18. Type species: *Ditrapaspis semirufa* Kieffer, by monotypy. [Synonymised by Weld, 1930: 139.]

*Salpictes* Kieffer, 1913: 31. Type species *Salpictes rufiventris* Kieffer, by monotypy. [Synonymised by Weld, 1931: 223.]

DIAGNOSIS. ♀ antenna 13-segmented, clavate, segments 7–13 with rhinaria, forming a distinct club (Fig. 15). ♂ antenna 15-segmented, filiform, segments 3–14 with rhinaria. Head viewed frontally with eyes, measured medially, further apart than the height of an eye, frontal area with radiating striae, weakly pubescent; malar grooves percurrent, striated on either side; back of head strongly sculptured. Pronotal plate strongly produced forwards, posterior and anterior parts separated by a medial bridge with an open fovea on each side, lateral margins densely pubescent. Pronotum on either side of pronotal plate crenulate or striate. Mesoscutum smooth and polished with a few sparse hairs; lateral bars of scutellum with longitudinal striations; scutellar fovea large, smooth and polished, separated by a narrow septum extending from the scutellar cup; scutellar cup pear-shaped, apical fovea declined, not visible in dorsal view; scutellar disc reticulate-rugose, rounded apically (in some males it can be bicuspid) (Fig. 16). Mesopleuron smooth and polished, mesopleural suture complete; metapleuron weakly ridged, anteroventral

tral cavity pubescent; propodeal carinae parallel sided though U-shaped. Segment 1 of gaster obscured by dense hairy ring (complete on dorsal surface): segment 2 the largest in lateral view, segments 3 and 4 partially visible; gaster partially or wholly impunctate; hypopygium weakly protruding (Fig. 18). Legs with coxae bulbous; femora, tibiae and tarsi pubescent. Fore wing with radial cell open or closed on margin but only weakly pigmented;  $R_1$  thinner than either  $Rs_1$  or  $Rs_2$ ; surface of wing dotted with hair bases (Fig. 19), apical margins of hind wing with a weak hair fringe; wings strongly infusate basally. Colour: head and thorax blackish; gaster bright orange-yellow to black; legs brown-yellow.

**DISTRIBUTION.** A small genus at present known only from Africa.

**DISCUSSION.** *Bothrochacis* is separated from the closely related genus *Eucoila* on the unusual declined apical fovea on the scutellar cup. Nordlander (1982) places *Bothrochacis* in his *Trybliographa* group of genera. Five nominal species have been covered in my examination of the genus and three of these I consider to be synonymous with the type species *B. erythropoda*, confirming some of Weld's synonymy.

## Key to species of *Bothrochacis* Cameron

### Females

- 1 Segment 3 of antenna longer than 4+5 (Fig. 31); scutellar disc rugose.  
Antennal segment 5 longer and broader than 4, 6 broader than 5; gaster punctate, black (Fig. 35). ..... *rufiventris* (Kieffer) (p. 178)
- Segment 3 of antenna subequal to or shorter than 4+5; scutellar disc reticulate-rugose. .... 2
- 2 Segment 3 of antenna shorter than 4+5 (Fig. 26); gaster reddish brown; hind tibia with a longitudinal ridge (Fig. 28). ..... *serratepilosa* Benoit (p. 178)
- Segment 3 of antenna as long as 4+5 (Fig. 15); gaster bright orange-red; hind tibia without a longitudinal ridge. .... *erythropoda* Cameron (p. 177)

### Males

*B. erythropoda* is the only species in which the male is known.

## *Bothrochacis erythropoda* Cameron

(Figs 15–17, 19)

*Bothrochacis erythropoda* Cameron, 1904: 164. LECTOTYPE ♂, SOUTH AFRICA (BMNH), here designated [examined] [Type no. 7–34].

*Stirenochoela striaticollis* Cameron, 1910: 180. Holotype ♂, SOUTH AFRICA (BMNH) [examined]. [Synonymised by Weld 1930: 139.]

*Ditrapaspis semirufa* Kieffer, 1910a: 18. Holotype ♂, MALAWI (MNHU) [examined]. **Syn. n.**

*Bothrochacis stercoraria* Bridwell, 1919: 178. Holotype ♀, SOUTH AFRICA: Capetown vicinity, iv.1915 (Bridwell) (SAM) [not examined]. **Syn. n.**

**DESCRIPTION.** ♀ antenna with segments 7–13 forming a distinct club, each segment slightly longer than wide, segment 3 as long as 4+5, 4–6 subquadrate; ♂ antenna with segments 3 and 4 swollen, segment 3 shorter than 4, 4 shorter than 5, 5 and 6 subequal in length, 6–9 subequal but tapering, 9–13 each shorter and slender (in lectotype segment 14 and whole of right antenna missing). Face smooth and polished medially with weak radiating striae on inner orbits; occiput finely and closely striated. Pronotal plate (Fig. 17); pronotum on either side of pronotal plate striate. Mesoscutum without trace of notauli; lateral bars of scutellum very finely sculptured dorsally. Metapleuron polished in upper region, sculptured on lower margin; lateral margins of propodeum obscured by pubescence; propodeal carinae bowed. Segment 1 of gaster in form of a narrow ring, weakly crenulate; apex of tergite 2 and whole of visible part of segment 3 punctate. Wings without pubescence, margins (except lower margin of hind wing (Fig. 19)) without a fringe of hairs; radial cell of fore wing appears partially open on wing margin due to a lack of pigmentation; cubitus (vein *M*) indicated, weakly pigmented basally; *Rs* + *M* indicated; basal infuscation of wing brownish. Legs robust; fore tibia with sharply curved bifid spur; mid and hind tibiae with two single spurs. Colour: antenna segment 1 black, remainder reddish brown; gaster orange-brown.

### MATERIAL EXAMINED

*Bothrochacis erythropoda* Cameron, lectotype ♂, **South Africa**: Cape Colony, Grahamstown, ?xi (*Daly & Sale*) (BMNH). *Stirenochoela striaticollis* Cameron, holotype ♂, **South Africa**: Cape Colony (BMNH). *Ditrapaspis semirufa* Kieffer, holotype ♂, **Malawi**: 'N. Nyasa' (MNHU).

**Kenya**: 2 ♀ (BMNH). **South Africa**: 26 ♂, 9 ♀ (BMNH); 6 ♀ (AM). **Zaire**: 6 ♀ (MRAC).



REMARKS. One of two male syntypes of *B. erythropoda* in the BMNH collection is designated as lectotype. It bears Cameron's data label 'Cape Colony'. Both specimens, however, bear the name *erythropus* and not *erythropoda* as published. Weld (1930) found that *Stirenocoela striaticollis* is synonymous with *erythropoda* and this has been confirmed. I have examined what remains (the antenna, gaster and parts of the legs are missing) of the holotype of *Ditruspaspis semirufa*. It bears labels 'N. Nyasa, Lamgenburg . . . 98, Fulleborn, S', 'Co type' [printed], and determination and syntype labels of G. Nordlander. Like Weld (1952) I consider it to be conspecific with *B. erythropoda*. Bridwell (1919) based his description of *B. stercoraria* on 10 ♀ and 2 ♂ from cow dung or bred from the puparia of *Musca lusuria* and *Lasiopyrellia cyanea* (Bridwell). He stated that he had been inclined to identify his material as *erythropoda* except that species was said to have the second abscissa of the radius roundly curved. I have not seen specimens of *B. stercoraria* but regard the distinguishing character as too variable to reliably separate species. On the basis of the description I therefore synonymise it with *B. erythropoda*.

***Bothrochacis rufiventris* (Kieffer)**

(Figs 31, 34, 35)

*Salpictes rufiventris* Kieffer, 1913: 31. Holotype ♀, KENYA (MNHN) [examined].

DESCRIPTION. ♀ antenna with segment 3 longer than 4+5, 5 longer and broader than 4, 6 broader than 5 (Fig. 31), 7–13 with rhinaria, each progressively broader and longer than the preceding segment, forming a distinct club. Face smooth and polished with radiating striae on inner margins of eyes; occiput with strong vertical striations. Mesoscutum with weak anterior parallel lines present, notauli weakly indicated; scutellum (Fig. 34); scutellar disc coarsely rugose. Propodeal carinae obscured by dense pubescence on lateral margins. Segment 1 of gaster in form of a crenulate ring; parts of segments 3 and 4 punctate (Fig. 35). Fore wing with radial cell open on margin; cubitus ( $R_1$ ) indicated; vein  $Rs + M$  extending to base of  $Rs$  and  $M$ ; hind wing with a fringe of hairs on lower margin. Legs robust, pubescent; fore tibia with sharply curved bifid spur; mid and hind tibiae with two single spurs. Colour: antenna reddish brown; gaster black.

♂ unknown.

MATERIAL EXAMINED

Holotype ♀, **Kenya**: British East Africa, 'Afrique Orientale Anglaise', Kajabe, 2100 m, St. no. 27, xii.1911 (MNHN).

REMARKS. I have seen only the holotype of this species. It is separated from *erythropoda* by antennal and colour characters.

***Bothrochacis serratepilosa* Benoit**

(Figs 26–30, 32, 33)

*Bothrochacis serratepilosa* Benoit, 1956: 534. Holotype ♀, RWANDA (MRAC) [examined].

DESCRIPTION. ♀ antenna subclavate, segments 7–13 with rhinaria, segment 3 shorter than 4+5, 4 and 5 subequal in length, 6 and 7 subequal, 7–13 swollen medially, 13 longer than 12 (Fig. 26). Head in lateral view wedge-shaped; frontal radiating striae weak, occiput with weak vertical striations. Pronotum on either side of pronotal plate strongly striate; pronotal plate with lateral foveae elongate, medial bridge narrow (Fig. 27). Scutellar disc truncate apically. Propodeal carinae bowed medially, pubescent on the outer margins. Gaster with apex of segment 2 and visible parts of 3–5 punctate; hypopygium pronounced. Hind tibia with a distinctive longitudinal ridge (Fig. 28). Fore wing with radial cell open on wing margin (Fig. 29), margin weakly pigmented; cubitus ( $M$ ) not extending to apex of wing; apical and hind margins of hind wing with a hair fringe; vein  $Rs + M$  not visible but outlined by a brownish hue extending across the basal half of the wing; vein  $Sc + R_1$  with a distinct break (Fig. 29). Colour: entirely reddish brown.

♂ unknown.

MATERIAL EXAMINED

Holotype ♀, **Rwanda**: Terr. Ruhengeri, Kagogo, 1900 m, 29.i.1953 (*Basilewsky*) (MRAC).

REMARKS. Distinguished by antennal and colour characters.

**DIGLYPHOSEMA** Foerster

*Diglyphosema* Foerster, 1869: 342. Type species: *Diglyphosema eupatorii* Foerster, by original designation and monotypy.

*Amphiglyphosema* Benoit, 1956: 546. Type species *Amphiglyphosema latesulcatum* Benoit, by original designation and monotypy. **Syn. n.**

**DIAGNOSIS.** ♀ antenna 13-segmented, weakly subclavate; ♂ antenna 15-segmented with modified third segment (Fig. 36). Head viewed frontally with malar grooves present with weak striations on either side; eyes as far or slightly further apart than the height of an eye. Pronotum with crenulate sculpture viewed dorsally; pubescent on either side of pronotal plate which is broad (Fig. 44). Mesoscutum with distinct but broken notauli with sparse hairs on apical half of each notaulus which is widened; scutellum with a large cup overhanging scutellar disc which is rugose to punctate; scutellar cup with a large central fovea or depression with a ring of smaller foveae close to border of cup. Mesopleural suture distinct with weak striations on dorsal margin. Gaster with segment 1 in form of a collar with weak crenulations, this segment sometimes obscured by segment 2 which occupies whole of remaining visible part of gaster; segment 2 of gaster smooth and shining, sometimes with a trace of punctures. Radial cell of fore wing open or closed (this is difficult to ascertain because the pigmentation is weak); wing surfaces ciliate, margin of wings with a hair fringe; cubitus distinct, not always pigmented. Legs generally clear yellow.

**DISTRIBUTION.** Europe, Africa, the New World.

**DISCUSSION.** Nordlander (1976) considers the Foerster genera *Disorygma*, *Microstilba*, *Gronotoma* and *Diglyphosema* to constitute a distinct genus-group. These genera with *Zaeucoila* constitute the *Gronotoma*-group of Nordlander (1982). Benoit (1956) described a further genus *Amphiglyphosema* which he indicated was similar to *Diglyphosema*. Weld (unpublished notes) suggested that the two genera differed in the radial cell. However, I find nothing to justify retaining *Amphiglyphosema* as a distinct genus at the present time. I also consider *Eucoilidea* Ashmead to belong to the *Gronotoma*-group. Weld (1952) referred to Hedicke's opinion (1930) that *Eucoilidea* was a synonym of *Gronotoma*. I have not seen the type species of *Gronotoma* but regard *Eucoilidea* as distinct (Quinlan, 1986). More extensive study of the *Gronotoma*-group is needed before the generic classification can be further refined.

Little is known of the host associations of *Diglyphosema*. Quinlan (1978) cites *Melanagromyza aeniventris* (Fallén), *M. nibletti* Spencer, *M. dettmeri* Hering, *M. eriolepidus* Spencer and *M. tripolii* Spencer as hosts of the European species *D. conjungens* Kieffer. The only host data for African species relate to *D. latesulcatum* (Benoit), from *Melanagromyza phascoli* Tryon and *Anthomyia centrosematis* de Meijere. Both of these Diptera are stem borers recorded throughout the Old World tropics.

**Key to the type species and Afrotropical species of *Diglyphosema* Foerster****Females**

- 1 Radial cell of fore wing open on wing margin (Fig. 38); antennal segments 3–9 subequal in length; gaster punctate (cf. Fig. 33). ..... *eupatorii* Foerster (p. 179)
- Radial cell closed (Fig. 41); antennal segments 3–12 each progressively shorter (Fig. 43); gaster punctate or impunctate. .... 2
- 2 Antennal segment 3 shorter than 4; radial cell of fore wing 2.5 times as long as wide; scutellar cup as broad apically as basally (Fig. 40); notauli narrowly separated apically (Fig. 40); gaster punctate apically (Fig. 39). ..... *utica* sp. n. (p. 180)
- Antennal segment 3 subequal to 4; radial cell of fore wing 2.0 times as long as wide (Fig. 42); scutellar cup as long as wide, dew-drop shaped (Fig. 48); notauli as far apart apically as basal width of a notaulus (Fig. 48); gaster impunctate. .... *latesulcatum* (Benoit) (p. 180)

**Males**

No males of the Afrotropical species are known.

***Diglyphosema eupatorii* Foerster**

(Figs 38, 44–46)

*Diglyphosema eupatorii* Foerster, 1869: 345. Holotype ♀, GERMANY (MNHU) [examined].

**DESCRIPTION.** ♀ antenna very weakly subclavate, segments 3–9 subequal, segments 10–12 subequal, each fractionally broader than preceding one. Head viewed frontally with inner margins of eyes almost parallel; malar grooves obscured by striations on either side; face with scattered pubescence. Pronotum either side

of pronotal plate canaliculate. Mesoscutum with deep notauli converging, but not merging, posteriorly, where they are broader and sculptured; base of scutellum with two deep foveae; disc on lateral margins punctate; cup large and extending past apex of scutellum, with a large central fovea. Carinae of propodeum parallel; mesopleural suture complete, area below suture smooth and shining. Segment 1 of gaster short, broader than long, crenulate; segment 2 the only segment visible in lateral view; apical third of gaster punctate. Legs orange-yellow. Wings with hair fringe entire; radial cell of fore wing longer than wide, open on margin; cubitus not visible (Fig. 38).

#### MATERIAL EXAMINED

Holotype ♀, **Germany**: Aachen (MNHU).

REMARKS. This, the type species of the genus, does not occur in Africa; it is included to facilitate comparison with the Afrotropical species.

### *Diglyphosema latesulcatum* (Benoit) comb. n.

(Figs 36, 37, 42, 47–49)

*Amphiglyphosema latesulcatum* Benoit, 1956: 546. Holotype ♀, RWANDA (MRAC) [examined].

DESCRIPTION. ♀ antenna subclavate, segments 3 and 4 equal in length; ♂ antenna (Fig. 36) with segments 4–15 moniliform. Face with long scattered pubescence; malar space with distinct striations; frontal line raised. Pronotal plate large, not protruded, with two foveae medially. Mesoscutum with notauli converging strongly half way towards scutellum, the apical third broad and sculptured, in the form of a series of linked foveae (Fig. 48); scutellar disc viewed dorsally visible only on the lateral margins, surface of disc reticulate-rugose with long scattered hairs forming a fringe apically; scutellum with two foveae at base. Carinae of propodeum converging basally, parallel medially; mesopleuron smooth and polished. Segment 1 of gaster usually obscured by segment 2; segment 1 short, broader than long, crenulate; segment 2 with a few scattered hairs at base; gaster impunctate. Radial cell of fore wing closed; base of wings fumate; *Rs* + *M* and *M* not pigmented or indicated. Colour: antenna light brown basally, becoming darker towards apex; head and thorax black; gaster chestnut brown; legs orange-yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Rwanda**: Ruhengerri, Kagogo, 1900 m, 29.i.1953 (*Basilewsky*) (MRAC).

REMARKS. Differs from the European species of *Diglyphosema* mainly in having the radial cell closed and the gaster not densely punctate and by the shape of the scutellar cup. A long series of males, possibly of this species, has been examined but there is not sufficient evidence to justify a positive association.

### *Diglyphosema utica* sp. n.

(Figs 39, 40, 41, 43)

DESCRIPTION. ♀ antenna subclavate, segment 3 shorter than 4, 4 longer than 5, 5 and 6 subequal in length, 7–13 each slightly, progressively shorter (Fig. 43). Inner margins of eyes with long scattered pubescence; malar space with distinct striations on either side; frontal line raised. Pronotal plate, not protruded, viewed frontally posterior part longer than anterior part, foveae either side of medial bridge open (Fig. 44). Mesoscutum smooth and polished, with notauli converging sharply two-thirds towards scutellum, separated basally by a narrow stem, wine glass-shaped (Fig. 40); lateral bars of scutellum smooth and polished, short and broad; scutellar foveae shallow, polished; scutellar disc reticulate-rugose on lateral margins, its apex obscured by scutellar cup; scutellar cup longer than broad, as broad apically as basally, the ring of foveae extending from apex of rim to two-thirds of way towards scutellar fovea. (Fig. 40); apex of disc with long hairs forming a fringe. Propodeum obscured by dense pubescence; mesopleuron smooth and polished; mesopleural suture arched; metapleuron and side of propodeum densely pubescent. Segment 1 of gaster in form of a crenulate ring; segment 2 finely punctate apically. Radial cell of fore wing closed on margin (Fig. 41); base of wings fumate; *Rs* + *M* and *M* not indicated. Colour: antenna yellowish basally, becoming darker towards apex; head and thorax black; gaster chestnut brown; legs orange-yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Nigeria**: W. State, Ile-Ife, v.1973 (*Medler*) (BMNH).

Paratypes. **Ivory Coast**: 2 ♀ (BMNH).

REMARKS. Very closely related to *latesulcatum* but distinguished by antennal, wing and scutellar cup characters.



**EMARGO** Weld

*Emargo* Weld, 1960: 195. Type species: *Emargo eciton* Weld, by original designation and monotypy.

**DIAGNOSIS.** ♀ antenna 13-segmented (rarely 12), segment 1 longer than 2, swollen apically, segment 2 subquadrate, very broad, segments 7–13 in type species forming an indistinct club. Head broader than thorax. Pronotal plate protruding, lateral fovea open. Mesoscutum smooth and polished, notauli fine, complete; scutellar fovea weakly indicated; lateral bars of scutellum broad basally, short and polished; scutellar disc reticulate-coriaceous, rounded apically; scutellar cup large, occupying almost entire dorsal surface of scutellum (Fig. 51). Mesopleural suture absent, surface of mesopleuron smooth and polished; metapleuron polished, anteroventral cavity hairless; propodeum with dense woolly pubescence laterally. Segment 1 of gaster obscured by propodeal pubescence and pubescence at base of tergite 2; tergites 2–6 visible in lateral view, 2 shorter than 3 (Fig. 23). Wing surfaces pubescent, fore wing incised at apex, distal margins with fringe of hairs; radial cell of fore wing very small, open on margin (Fig. 21); hind wings narrow. Legs with hind coxa swollen with pubescence basally.

**DISTRIBUTION.** Mexico, Marianas Is, Africa, Madagascar, Sulawesi, Australia.

**DISCUSSION.** *Emargo* was described and placed by Weld in the Figitinae. He stated that it differed from all other Figitinae in having the fore wings emarginate. After studying the genus I conclude that it belongs to the Eucolidae, to which it is transferred. Contrary to Weld's description of the scutellum, the cup is exceptionally large and occupies the whole of the dorsal surface. Also it has a typical eucoloid pronotal plate, dense pubescence on the lateral margins of the propodeum and a hairy ring at the base of tergite 2. However, unlike the majority of eucolids, segment 2 of the gaster is not the largest. I consider the relatively small size of segment 2 to be a primitive character. Apart from the type species and the Afrotropical species dealt with here I have seen specimens of *Emargo* from Sulawesi and Australia. The scutellar cup in this latter material is weakly represented on a polished scutellar disc. Two males and one female from Australia belong to a species very close to one of the Afrotropical species.

It is not possible to run this genus to a family in Weld's key (1952). In my key to families and subfamilies (Quinlan, 1979) it would run to Eucolidae but for the relative sizes of gastral segments 2 and 3. Couplet 5 (Quinlan, 1979: 90) should be amended to read 'Segments 2 and 3 of gaster *generally* fused, without visible suture, *exceptionally with segment 2 differentiated*.' The differentiation of segment 2 in *Emargo* is similar to the condition found in Figitinae. The weakly delineated scutellar cup (cf. Fig. 59) can also appear very similar to the smooth scutellum of figitines.

The only two males known from Africa have 14-segmented antennae. *Emargo* has in common with *Glauerspida*, *Pseudopsichacra* and the new genus *Sirenes* a densely woolly pronotal plate, densely pubescent propodeal and basal gastral segments, and no mesopleural suture.

Weld (1960) stated that *Emargo eciton* was taken by Berlese funnel extraction from refuse deposits of the army ant *Eciton burchelli* (Westwood) and presumed its host to be one or more flies of the families Phoridae, Muscidae or Sarcophagidae.

**Key to the Afrotropical species of *Emargo* Weld****Females**

- 1 Antenna with 7-segmented club, each segment a little longer than broad (Fig. 53).  
     Legs very pale yellow. .... *laverna* sp. n. (p. 183)
- Antennal club 8–10 segmented, each with rhinaria. .... 2
- 2 Antennal club 8-segmented (Figs 54, 56). .... 3
- Antennal club 9–10-segmented (Figs 55, 57). .... 4
- 3 Antennal club with conspicuous rhinaria, each segment 3 times as long as broad (Fig. 54); apex of wing broad, weakly incised. .... *pexus* sp. n. (p. 185)
- Antennal club with inconspicuous rhinaria, each segment less than 3 times as long as broad (Fig. 56); apex of wing narrow, strongly incised. .... *cantus* sp. n. (p. 182)
- Antennal club 9-segmented. .... 5
- Antennal club 10-segmented. .... 9
- 5 Antenna 12-segmented, segment 3 minute (Fig. 55), shorter than segment 4.  
     Antennal club segments sharply indicated, each with strong rhinaria and conspicuous setae (Fig. 55); apex of wing sharply incised, broad. .... *capito* sp. n. (p. 183)
- Antenna 13-segmented, segment 3 equal in length to 4 or longer. .... 6
- 6 Antennal segments 3 and 4 equal in length, club segments 3 times as long as broad (indicated by strong rhinaria) (Fig. 57).  
     Apex of wings strongly incised. .... *ascia* sp. n. (p. 182)

- Antennal segment 3 longer than 4, apical segments variable in proportions. .... 7
- 7 Antennal club segments 2 times as long as broad (blackish apically, rhinaria present) (Fig. 58).  
Wings narrow apically, sharply incised. .... *matius* sp. n. (p. 183)
- Antennal club segments not less than 3 times as long as broad. .... 8
- 8 Apical segments of antenna very pale; lateral bars of scutellum polished, notauli indistinct.  
Scutellar cup long and narrow (Fig. 59). .... *palloris* sp. n. (p. 185)
- Apical segments of antenna brownish black; lateral bars of scutellum sculptured, notauli  
distinct (Fig. 60). .... *numa* sp. n. (p. 184)
- 9 Antennal segment 3 shorter than 4.  
Antennal club segments 3 times as long as broad (Fig. 61). .... *themis* sp. n. (p. 186)
- Antennal segment 3 as long as or longer than 4. .... 10
- 10 Antennal segment 3 distinctly longer than 4.  
Antennal club segments 3 times as long as broad, with rhinaria (Fig. 62). .... *vacuna* sp. n. (p. 186)
- Antennal segments 3 and 4 equal in length. .... 11
- 11 Club segments of antenna 3 times as long as broad (Fig. 63), rhinaria inconspicuous.  
*micipsa* sp. n. (p. 184)
- Club segments of antenna slightly longer than broad, rhinaria conspicuous (Fig. 64).  
*peleus* sp. n. (p. 185)

### Males

The only two male specimens from Africa cannot be associated with any particular species.

### *Emargo ascia* sp. n.

(Figs 51, 52, 57, 65)

DESCRIPTION. ♀ antenna with segments 3 and 4 subequal in length, 2 wider than 3 or 4, 5–13 with rhinaria forming a club (Fig. 57). Face smooth and polished with scattered hairs; malar grooves not indicated; anterior tentorial pits distinct; eyes large. Pronotal plate projected forward, medial bridge broader than the open lateral fovea; pronotum with long scattered setae. Notauli not percurrent, with a few scattered setae in their place; lateral bars of scutellum small triangular; scutellar fovea shallow; scutellar disc smooth and polished; scutellar cup long and narrow, weakly defined; apex of scutellar disc round, surface weakly sculptured (Fig. 51). Propodeum obscured laterally and dorsally by dense woolly pubescence; area below ventral region of mesopleuron pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (Fig. 52); hypopygium small. Wing surfaces densely pubescent, margins with a long apical hair fringe; veins thick (Fig. 65). Colour: antenna yellowish brown; head brownish; thorax and gaster brownish; legs pale yellow.

♂ unknown.

### MATERIAL EXAMINED

Holotype ♀, **Madagascar**: Beresty 12 km, NW. Ambossary, 5–15.v.1983 (Noyes & Day) (BMNH).

Paratypes. **Madagascar**: 2 ♀ (BMNH). **Zambia**: 1 ♀ (BMNH).

REMARKS. Distinguished from closely related species with a 9-segmented antennal club by the proportions of the antennal segments.

### *Emargo cantus* sp. n.

(Figs 56, 66, 67)

DESCRIPTION. ♀ antenna weakly subclavate, segment 2 subequal in length to 3 but thicker, 3 longer than 4, 4 and 5 subequal in length, 6–13 forming a weak club, rhinaria weakly indicated (Fig. 56). Face smooth and shining with sparse scattered hairs medially; malar grooves not indicated; anterior tentorial pits pronounced. Pronotal plate projected forward, medial bridge narrow between the open lateral fovea. Notauli percurrent, with 2 or 3 long setae present; scutellar fovea polished, semi-circular; scutellar disc smooth and polished; scutellar cup aberrant, faint in dorsal view, long and narrow, declined (Fig. 66). Propodeum obscured laterally and dorsally by dense woolly pubescence; ventral margin of mesopleuron pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 52); hypopygium not prominent. Wing surfaces densely pubescent, margins with a long apical hair fringe; veins thick (Fig. 67). Colour: antenna, head, thorax and gaster orangy-brown; legs pale yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Zimbabwe**: Salisbury, Chishawasha, i.1979 (*Watsham*) (BMNH).

Paratypes. **Zimbabwe**: 3 ♀ (BMNH). **Zaire**: 1 ♀ (MRAC).

REMARKS. This species is most closely related to *pexus* (q.v.).

*Emargo capito* sp. n.

(Figs 55, 68)

DESCRIPTION. ♀ antenna 12-segmented, segment 3 minute, 4–12 with faint rhinaria, forming a distinct club (Fig. 55). Face smooth and shining, with scattered hairs; malar space small, grooves not indicated; eyes large, further apart than the height of an eye; head viewed dorsally large, almost square, as wide as thorax. Pronotal plate projected forward, medial bridge broad, the lateral foveae small, with dense pubescence; pronotum with a few sparse hairs. Notauli aberrant, with a few long setae in their place; lateral bars of scutellum triangular; scutellar fovea shallow; scutellar disc smooth and polished; scutellar cup weakly indicated, a weak apical fovea indicated (Fig. 68). Propodeum obscured laterally and dorsally by dense woolly pubescence. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 52); hypopygium pronounced. Apical margins of wings with a long hair fringe; radial cell of fore wing minute; apex of fore wings excised (cf. Fig. 21). Colour: antenna light brown; head dark brown; thorax orange-yellow; gaster light brown; legs pale yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Madagascar**: Tam Perinet, 27.iv.1983 (*Noyes & Day*) (BMNH).

REMARKS. This species is exceptional among the Afrotropical species of the genus in having 12-segmented antennae with the third segment very reduced. Two males and one female from Australia are very close to this species but until further material is seen or the Australian cynipoid fauna is examined no decision can be made on their status.

*Emargo laverna* sp. n.

(Fig. 53)

DESCRIPTION. ♀ antenna with segment 2 longer and wider than 3, 3 longer than 4, 4 and 5 subequal in length, 6 shorter than 5, 7–13 as wide as long forming a distinct club (Fig. 53). Face smooth and polished with scattered hairs; malar grooves aberrant; eyes small, almost round. Pronotal plate projected forward, medial bridge as wide as the open lateral fovea; pronotum polished, without hairs. Notauli weakly indicated, with a few scattered hairs in their place; lateral bars of scutellum small triangular; scutellar fovea shallow; scutellar disc smooth and polished; scutellar cup long and narrow, very weakly defined (cf. Fig. 66). Propodeum obscured laterally and dorsally by dense woolly pubescence. Gaster with tergite 3 the largest, tergites 4–7 partially visible; hypopygium small. Wing surfaces densely pubescent, margins with a long apical hair fringe; apex of fore wing strongly incised; veins thick (cf. Fig. 67). Colour: antenna yellowish brown; head brownish; thorax and gaster yellowish brown; legs pale yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Zimbabwe**: Salisbury, Chishawasha, ii.1979 (*Watsham*) (BMNH).

Paratype. **Kenya**: 1 ♀ (BMNH).

REMARKS. This is the only species of the genus with a 7-segmented antennal club.

*Emargo matius* sp. n.

(Figs 58, 69)

DESCRIPTION. ♀ antenna with segment 2 subequal in length to 3 but wider, 4 shorter than 3, 5–13 with rhinaria forming a distinct club (Fig. 58). Face smooth and polished with scattered hairs medially around clypeal region; malar grooves weakly indicated; head viewed dorsally almost as wide as long. Pronotal plate projected forward, medial bridge wide, the lateral foveae open; pronotum with long scattered setae. Notauli percurrent, with long setae obscuring them; lateral bars of scutellum small; scutellar fovea small and shallow; scutellar disc smooth and polished with long setae; scutellar cup long and narrow, weakly indicated (Fig. 69). Propodeum obscured laterally and dorsally by dense woolly pubescence; area below



ventral region of mesopleuron densely pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 23); hypopygium small. Wing surfaces densely pubescent, margins with a long apical hair fringe; apex of fore wing strongly incised; veins thick (cf. Fig. 67). Colour: antenna yellowish brown; head, thorax and gaster brownish; legs yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zimbabwe**: Chishawasha, i.1979 (*Watsham*) (BMNH).

Paratypes. **Zimbabwe**: 3 ♀ (BMNH). **Cameroun**: 1 ♀ (BMNH). **Kenya**: 1 ♀ (BMNH). **Zaire**: 1 ♀ (BMNH).

REMARKS. Distinguished from *ascia*, *palloris* and *numa* on the shape and proportions of the antennal segments, these four species are otherwise but little distinct.

### *Emargo micipsa* sp. n.

(Figs 23, 63)

DESCRIPTION. ♀ antenna clavate, with segments 2 and 3 subequal in length, 2 wider than 3, 4–13 subequal in length, swollen medially, rhinaria distinct (Fig. 63). Face smooth and polished; malar grooves not indicated; anterior tentorial pits distinct; eyes further apart measured medially than the height of an eye. Pronotal plate projected forward, medial bridge broad, the lateral foveae open; pronotum with sparse long setae. Notauli very weakly indicated in part with long scattered hairs in their place; lateral bars of scutellum triangular; scutellar fovea large semi-circular shallow; scutellar disc smooth and polished; scutellar cup long and narrow (cf. Fig. 51). Propodeum obscured laterally and dorsally by dense woolly pubescence; area below ventral margin of mesopleuron pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (Fig. 23); hypopygium not prominent. Wing surfaces densely pubescent, margins with a long apical hair fringe; apex of fore wing strongly incised; veins thick (cf. Fig. 21). Colour: antenna yellowish; head brownish; thorax and gaster brownish yellow; legs pale yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Cameroun**: Nkoemvon, 13.vii.–24.viii.1980 (*Jackson*) (BMNH).

Paratypes. **Cameroun**: 3 ♀ (BMNH). **Madagascar**: 2 ♀ (BMNH). **Zaire**: 3 ♀ (MRAC).

REMARKS. One of a group of four species with a 10-segmented antennal club, *micipsa* can be distinguished from the others (*peleus*, *themis* and *vacuna*) by the proportions of the antennal segments and, in common with *vacuna*, *micipsa* has obsolete notauli.

### *Emargo numa* sp. n.

(Figs 60, 70, 71)

DESCRIPTION. ♀ antenna weakly subclavate, with segment 2 shorter than 3 but thicker, 3 longer than 4, 4 shorter than 5, 5–13 with rhinaria forming a club (Fig. 70). Face smooth and polished with scattered hairs; malar grooves absent. Pronotal plate small, projected forward, the lateral foveae open, weakly pubescent; pronotum with a few long sparse setae. Notauli distinct, percurrent, a few sparse hairs present; lateral bars of scutellum sculptured; scutellar fovea shallow; scutellar disc smooth and polished; scutellar fovea shallow; scutellar disc smooth and polished; scutellar cup long and narrow, weakly defined; apex with small pit or fovea, surface of scutellum with long sparse setae (Fig. 60). Propodeum obscured laterally and dorsally by dense woolly pubescence; ventral margin of mesopleuron pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 52); hypopygium not prominent. Wing surfaces densely pubescent, margins with a long apical hair fringe; veins thick (cf. Fig. 21). Colour: antenna brownish; head, thorax and gaster orange-brown; legs yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zimbabwe**: Salisbury, Chishawasha, i.1979 (*Watsham*) (BMNH).

Paratype. **Zimbabwe**: 1 ♀ (BMNH).

REMARKS. Differs from *palloris* in the lateral bars of the scutellum and shape of the scutellar cup.

***Emargo palloris* sp. n.**

(Figs 59, 72)

DESCRIPTION. ♀ antenna filiform, with segment 2 shorter than 3, 3 longer than 4, 4 and 5 subequal in length, 5–13 with rhinaria forming a very weak club (Fig. 72). Face smooth and polished with scattered hairs; malar grooves weakly indicated; head as broad as thorax. Pronotal plate projected forward, medial bridge wide; pronotum with long scattered setae. Notauli aberrant, not percurrent, a line of scattered hairs in their place; lateral bars of scutellum small triangular; scutellar fovea shallow; scutellar disc hardly visible; scutellar cup long and narrow, only weakly indicated, smooth and polished with a few long scattered setae; apex of scutellar disc not visible in dorsal view (Fig. 59). Propodeum obscured laterally and dorsally by dense woolly pubescence; area below ventral margin of mesopleuron pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 23); hypopygium pronounced. Wing surfaces densely pubescent, margins with a long apical hair fringe; apex of fore wing strongly incised; radial cell short and thick (cf. Fig. 67). Colour: antenna yellow with apical segments pale, almost white; head, thorax and gaster yellowish brown; legs yellowish.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Zaire**: Massif Ruwenzori, riv. Kamusmge, 1700 m, a.f. Ndama, 3.xi.1953 (*Vanschuytbroeck & Hendrickx*) 6143-45 (MRAC).

Paratypes. **Zaire**: 3 ♀ (MRAC, BMNH).

REMARKS. Separated from *numa* by the lateral bars of scutellum and the scutellar cup.

***Emargo peleus* sp. n.**

(Figs 64, 73)

DESCRIPTION. ♀ antenna clavate, with segment 2 longer and wider than 3, 3 and 4 subequal in length but thinner, 4–13 a little longer than wide with rhinaria, forming a club (Fig. 64). Face smooth and polished with sparse scattered hairs; malar grooves absent; head as broad as thorax. Pronotal plate projected forward, the open lateral foveae small, densely pubescent; pronotum with long scattered setae. Notauli distinct, percurrent, a few long hairs present; lateral bars of scutellum small triangular; scutellar fovea shallow; scutellar disc smooth and polished, square apically; scutellar cup long and narrow, extending past apex of scutellum (cf. Fig. 66). Propodeum obscured laterally and dorsally by dense woolly pubescence; ventral margin of mesopleuron densely pubescent. Gaster with tergite 3 the largest, remaining tergites partially visible; hypopygium short and broad (Fig. 73). Wing surfaces densely pubescent, margins with a long apical hair fringe; radial cell small; veins thick (cf. Fig. 65). Colour: antenna yellow; head, thorax and gaster orange-brown; legs yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Cameroun**: Nkoemvon, vii.–viii. (*Jackson*) (BMNH).

Paratypes. **Cameroun**: 3 ♀ (BMNH). **Madagascar**: 1 ♀ (BMNH).

REMARKS. Most closely related to *micipsa* (q.v.).

***Emargo pexus* sp. n.**

(Figs 54, 74)

DESCRIPTION. ♀ antenna filiform, with segment 2 subequal in length to 3 but thicker, 3 longer than 4, shorter than 5, 6–13 with pronounced rhinaria forming a club (Fig. 54). Face smooth and polished; malar grooves not indicated; anterior tentorial pits distinct; eyes measured medially further apart than the height of an eye. Pronotal plate projected forward, medial bridge broad. Notauli percurrent; lateral bars of scutellum elongate with weak sculpture on lateral margins; scutellum large, scutellar disc smooth and polished, narrow apically; scutellar cup weakly indicated, apex with a fovea (Fig. 74). Propodeum obscured laterally and dorsally by dense woolly pubescence; ventral margin of mesopleuron pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 23); hypopygium prominent. Wing surfaces densely pubescent, margins with a long apical hair fringe; apex of fore wing weakly incised; veins thick (cf. Fig. 21). Colour: antenna brownish yellow head, thorax and gaster blackish; legs yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Madagascar**: Tam Perinet, 27.iv.–3.v.1983 (*Noyes & Day*) (BMNH).

Paratype. **Madagascar**: 1 ♀ (BMNH).

REMARKS. This species and *cantus* are the only Afrotropical species in the genus with an 8-segmented antennal club. They can be distinguished by differences in the shape of the wings and in the proportions of the antennal segments. Also their distributions are disjunct, though this could be merely a reflection of the paucity of collections of microhymenoptera from the Afrotropical region.

***Emargo themis* sp. n.**

(Fig. 61)

DESCRIPTION. ♀ antenna filiform, with segment 2 subequal in length to 3 but wider, 3 thinner and shorter than 4, 4–13 with rhinaria indicated, weakly swollen medially (Fig. 61). Face smooth and polished with scattered hairs; malar grooves not indicated; anterior tentorial pits distinct; eyes large, further apart measured medially than the height of an eye. Pronotal plate projected forward, medial bridge narrow. Notauli percurrent, a few sparse hairs present; lateral bars of scutellum triangular; scutellar fovea large, shallow; scutellar disc with aberrant sculpture; scutellar cup long and narrow (cf. Fig. 51). Propodeum obscured laterally and dorsally by dense woolly pubescence; area below ventral margin of mesopleuron densely pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 52); hypopygium small. Wing surfaces densely pubescent, margins with a long apical hair fringe; apex of fore wing strongly incised; veins thick (Fig. 65). Colour: antenna yellowish brown; head, thorax and gaster dark brown; legs pale yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **Cameroun**: Nkoemvon, 13.vii.–24.viii.1980 (*Jackson*) (BMNH).

Paratypes. **Cameroun**: 4 ♀ (BMNH). **Madagascar**: 2 ♀ (BMNH).

REMARKS. This apparently widespread species belongs to the group having a 10-segmented antennal club (see remarks on *micipsa*).

***Emargo vacuna* sp. n.**

(Fig. 62)

DESCRIPTION. ♀ antenna clavate, segment 2 shorter but wider than 3, longer than 4, 4–13 more than twice as long as wide, with rhinaria weakly indicated (Fig. 62). Face smooth and polished with scattered setae; malar grooves not indicated; anterior tentorial pits distinct; eyes measured medially further apart than the height of an eye. Pronotal plate projected forward, posterior part of plate angular, medial bridge broad, the lateral foveae with tufts of pubescence; pronotum with sparse hairs. Notauli not percurrent, with a few long hairs in their place; lateral bars of scutellum triangular; scutellar fovea large, shallow and polished; scutellar disc smooth and polished; scutellar cup long and narrow, weakly outlined with a few long setae (cf. Fig. 69). Propodeum obscured laterally and dorsally by dense woolly pubescence; area below ventral margin of mesopleuron densely pubescent. Gaster with tergite 3 the largest, tergites 4–7 partially visible (cf. Fig. 52); hypopygium small. Wing surfaces densely pubescent, margins with a long apical hair fringe; veins thick (Fig. 65). Colour: antenna light brown; head, thorax and gaster orange-brown; legs pale yellow.

♂ unknown.

## MATERIAL EXAMINED

Holotype ♀, **South Africa**: Pondoland, Port St John, 6–25.ii.1924 (*Turner*) (BMNH).

REMARKS. Distinguished from other species by antennal characters (see remarks on *micipsa*).

***EUCOILA* Westwood**

*Eucoila* Westwood, 1833: 494. Type species: *Eucoila crassinervis* Westwood, by original designation.

*Psilodora* Foerster, 1869: 354. Type species: *Cothonaspis boyenii* Hartig, by original designation.

[Synonymised by Weld, 1952: 212.]

*Lytosema* Kieffer, 1901: 159. Type species: *Eucoela guerini* Dahlbom, by subsequent designation of Ashmead, 1903: 67. [Synonymised by Weld, 1931: 222.]

*Psilodoropsis* Hedicke, 1913: 413. Type species: *Psilodoropsis conradti* Hedicke, by original designation and monotypy. [Synonymised by Nordlander, 1981: 398.]



**DIAGNOSIS.** ♀ antenna 13-segmented, clavate, segments 6–13 with rhinaria and forming a distinct club in the type species; ♂ antenna 14-segmented, filiform, segments 3–14 with rhinaria, subequal in length (Fig. 78). Head viewed frontally almost square (Fig. 77); inner margins of eyes subparallel, further apart measured medially than height of an eye; malar grooves percurrent, striated either side of groove near clypeus; clypeus and mandibles with long setae; head polished on occiput and vertex. Pronotal plate strongly produced in form of a collar viewed dorsally, medial bridge with a lateral fovea on either side, open, with dense pubescence. Mesoscutum smooth and polished, with sparse scattered hairs, notauli not present; scutellum with strongly striated lateral bars, scutellar foveae window-like (Nordlander, 1982), large deep; scutellar plate (cup) oval, weakly excavate, with a fovea on the apex, visible in dorsal view; scutellar disc reticulate-rugose, rounded apically (Fig. 79). Mesopleuron smooth and polished, mesopleural suture (carina) complete; sides of pronotum and precoxal area striated; metapleuron strongly ridged, anteroventral cavity striated; propodeal carinae angular. Segment 1 of gaster obscured by a dense woolly ring of pubescence (complete on dorsal surface); segments 2–4 visible in lateral view, apical quarter of segment 2 not visible; parts of 3 and 4 densely punctate; hypopygium with long subapical setae. Coxae bulbous, smooth; femora, tibiae and tarsi weakly pubescent. Fore wing with a distinctly closed radial cell in type species; vein  $R_1$  thinner than either  $Rs_1$  or  $Rs_2$ ; surfaces of wings with dotted hair bases, apical margins of wings with weak hair fringe (cf. Fig. 81); wings weakly infuscated. Colour: antenna black basally, club yellowish brown; head, thorax and gaster blackish brown; legs brownish yellow.

**DISTRIBUTION.** Europe, Africa, the New World.

**DISCUSSION.** Nordlander (1982) regards *Eucoila* as the sister-group of *Trybliographa* and *Bothrochacis* and he divides the genus into two species-groups: the *nudipennis*-group and the *crassinerva*-group. *Eucoila* differs primarily from *Bothrochacis* by the form of the scutellum, the apical fovea on the scutellar cup being sharply declined in *Bothrochacis* (Fig. 30) and not visible in dorsal view. *Trybliographa* always has the surface of the wings pubescent and the marginal fringe of hair present (Fig. 81). Both species-groups of *Eucoila* lack pubescence on the surface of the wings, while the *nudipennis*-group has a reduced subalar pit. *Trybliographa* and the *crassinerva*-group of *Eucoila*, together with *Leptopilina*, have an area behind the posteroventral edge of the metapleuron completely free of pubescence.

Five Afrotropical species have been described in *Eucoila*, namely, *E. cavernicola* Kieffer and *E. kilimandjaroi* Kieffer transferred to *Pseudeucoila* by Weld (1952), *E. flagellicornis* Kieffer transferred to *Psichacra* by Weld (1952), and *E. camerounensis* Risbec which cannot be satisfactorily identified (see below). Four new species are described and keyed here.

## Key to Afrotropical species of *Eucoila* Westwood

### Females

- |   |   |                               |
|---|---|-------------------------------|
| 1 | Antennal club 7-segmented (Fig. 82). .....  | 2                             |
| – | Antennal club 8–9 segmented.  |                               |
|   | Radial cell of fore wing distinctly open (Fig. 92); mesopleural suture distinct. ....   | 3                             |
| 2 | Mesopleural suture indistinct, obscured by microsculpture (Fig. 88); radial cell of fore wing elongate, almost closed on wing margin (Fig. 90); pronotal plate (Fig. 89); antennal segment 3 shorter than 4+5 (Fig. 82). .... | <i>marina</i> sp. n. (p. 188) |
| – | Mesopleural suture distinct, not obscured by sculpture; radial cell of fore wing squarish (cf. Fig. 80); pronotal plate (Fig. 86); antennal segment 3 subequal to 4+5 (Fig. 84). ....   | <i>bantia</i> sp. n. (p. 187) |
| 3 | Antennal club 8-segmented; scutellar disc rounded apically (cf. Fig. 87). ....  | <i>veleda</i> sp. n. (p. 189) |
| – | Antennal club 9-segmented (Fig. 85); scutellar disc bicuspid apically (Fig. 91). ....   | <i>erinna</i> sp. n. (p. 188) |

### Males

Only the male of *E. marina* sp. n. is known.

### *Eucoila bantia* sp. n.

(Figs 84, 86, 87)

**DESCRIPTION.** ♀ antenna with segments 7–13 with rhinaria and forming a club (Fig. 84), segment 3 longer than 4, 4–6 subequal in length, club segments 2 times as long as wide. Head viewed frontally with eyes as far apart as the height of an eye measured medially; face smooth and polished with sparse scattered pubescence. Pronotal plate (Fig. 86); pronotum either side of pronotal plate pubescent. Scutellar fovea smooth and polished, shallow; scutellar cup with medial area transversely striated; scutellar disc Fig. 87. Metapleuron polished; anteroventral cavity pubescent; propodeal carinae weakly bowed, pubescent on

outer margins; nucha obscured by pubescence. Segment 1 of gaster in form of a narrow ring; segment 2 the largest, occupying most of the lateral area; segment 3 partially visible; gaster impunctate; hypopygium broad apically. Radial cell of fore wing partially open on wing margin (cf. Fig. 92); lateral and medial area of wings infusate. Coxae longer than wide; hind coxa with distinct comb of hairs on upper posterior margin; femora and tibiae long and narrow, femora swollen medially, tibiae swollen basally; metatarsus as long as remaining tarsal segments. Colour: antenna brownish yellow; head and thorax black, gaster chestnut brown; legs dark orange-brown.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zimbabwe**: Salisbury, Chishawasha, ii.1978 (*Watsham*) (BMNH).

Paratypes. **Zimbabwe**: 4 ♀ (BMNH). **Botswana**: 2 ♀ (BMNH). **Zaire**: 7 ♀ (MRAC).

### *Eucoila camerounensis* Risbec

*Eucoila camerounensis* Risbec, 1956: 160. Syntypes 2 ♂, 5 ♀, CAMEROUN: Mil. Garoua, vii.1954 (*Decamps*) (?lost).

I have not been able to locate the type material of this species and on the basis of the description and figure cannot reach any conclusions about its identity.

### *Eucoila erinna* sp. n.

(Figs 83, 85, 91, 92)

DESCRIPTION. ♀ antenna with segments 5–13 with rhinaria and forming a club (Fig. 83), segment 3 longer than 4, 4 shorter than 5. Head viewed frontally with eyes slightly further apart than the height of an eye measured medially; inner orbits of face with reticulate-rugose sculpture converging towards clypeus, extending to malar grooves, face and clypeus with scattered setae; occiput strigose. Pronotal plate cf. Fig. 86; outer parts angular. Lateral bars of scutellum very weakly striated; scutellar fovea deep, polished; scutellar cup almost circular with transverse sculpture; scutellar disc with apex weakly bicuspid (Fig. 91). Metapleuron weakly ridged basally; anteroventral cavity pubescent; propodeal carinae weakly bowed basally, outer margins of carina and of nucha densely pubescent. Segment 2 of gaster the largest, apical quarter finely punctate; segments 3 and 4 partially visible; hypopygium broad apically, with sub-basal hairs. Fore wing of female bare, apical half with dotted hair bases; radial cell open; posterior angle of wing with a weak fringe of hairs (more prominent on hind wing); medial area of wings infusate. Coxae longer than wide, bulbous, pubescent; trochanters longer than wide; femora swollen basally, long; tibiae long and narrow basally; tarsi narrow, metatarsus as long as remaining tarsal segments combined. Colour: antenna orange-brown; head and thorax black; gaster and legs orange.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Mabanga, 29.ix.1952 (*De Saeger*) (MRAC).

Paratypes. **Zaire**: 13 ♀ (MRAC).

### *Eucoila marina* sp. n.

(Figs 82, 88–90)

DESCRIPTION. ♀ antenna with segments 7–13 with rhinaria and forming a club (Fig. 82), segment 3 longer than 4, 4–6 subequal in length, club segments more than 2 times as long as wide; ♂ antenna 15-segmented, filiform, segment 3 shorter than 4, 4 shorter than 5, 5–15 subequal in length. Head viewed frontally with eyes further apart than the height of an eye measured medially; inner orbits of face reticulate-rugose, the sculpture extending to and obscuring the malar grooves; occiput reticulate-rugose. Pronotal plate (Fig. 89); medial bridge broad; outer margins of pronotal plate angular; pronotum either side of pronotal plate pubescent. Scutellar fovea polished, shallow; scutellar cup sculptured, apex with a small fovea; scutellar disc with appearance of radiating sculpture, apex square. Mesopleuron finely colliculate above mesopleural suture, strigose below (Fig. 88); metapleuron weakly sculptured, polished, ridged on lower margins adjacent to front coxae; anteroventral cavity small, pubescent; propodeal carinae weakly bowed medially, densely pubescent on outer margins; nucha obscured by pubescence. Segment 2 of gaster the largest, occupying most of lateral area, apical half and whole of visible parts of segments 3 and 4 finely punctate; hypopygium broad apically, with sub-basal hairs or setae. Fore wing of female with a few hairs on



veins, apical half bare, dotted with hair bases on under surface with a fringe of hairs on posterior angle, more pronounced on hind wing; radial cell of fore wing closed on wing margin though sometimes weakly pigmented; vein  $R_1$  becoming thinner at junction with  $Rs_2$ ; vein  $M$  distinct,  $Rs + M$  not apparent (Fig. 90); fore wing of male as in female except for apical fringes of hairs on margin. Coxae slightly longer than wide, swollen medially, weakly sculptured; trochanters longer than wide; femora long, weakly swollen medially, weakly sculptured; tibiae sculptured, pubescent; tarsi narrower than tibiae, weakly sculptured, metatarsus as long as remaining tarsal segments combined. Colour: antenna light brown; head and thorax black, except metapleuron, base of gaster and coxae chestnut brown; base and medial area of wings infuscated.

#### MATERIAL EXAMINED

Holotype ♀, **Kenya**: Nairobi, Karura, Furect, 13.xii.1970 (*Stubbs*) (BMNH).  
Paratypes. **Kenya**: 1 ♂ (BMNH). **Zaire**: 25 ♀, 12 ♂ (MRAC). **Zimbabwe**: 2 ♀ (BMNH). **South Africa**: 1 ♀ (BMNH). **Uganda**: 1 ♀ (BMNH).

#### *Eucoila veleda* sp. n.

DESCRIPTION. ♀ antenna with segments 6–13 with rhinaria and forming a club, segment 3 longer than 4, 4 and 5 subequal in length, club segments 2 times as long as wide medially. Head viewed frontally with eyes further apart than the height of an eye measured medially; inner orbits of face with a trace of strigose sculpture, not extending to malar grooves; face with sparse scattered setae; occiput weakly strigose. Pronotal plate cf. Fig. 89; medial bridge narrow; outer parts of plate angulate (cf. Fig. 86); pronotum either side of pronotal plate pubescent. Scutellar fovea polished, deep; scutellar cup with a few transverse striae; scutellar disc cf. Fig. 87. Mesopleural suture with broken sculpture below (cf. Fig. 88); metapleuron ridged apically; anteroventral cavity large, pubescent; propodeal carinae bowed, densely pubescent on outer margins; nucha obscured by pubescence. Segment 2 of gaster the largest, occupying most of lateral area; tergites 3–4 partially visible; apical third of 2 and visible parts of 3 and 4 finely punctate; hypopygium, when visible, broad apically with sub-basal setae. Fore wing with a few scattered hairs on veins, apical half bare, dotted with hair bases, with a small fringe of hairs on posterior angle, prominent on hind wings; radial cell of fore wing open on wing margin; medial area of wing infuscate. Coxae slightly longer than wide, swollen medially, polished; trochanters a little longer than wide; femora long, weakly swollen basally, polished; tibiae narrow basally, widest apically with scattered setae; tarsi thinner than tibiae, metatarsus as long as remaining tarsal segments combined. Colour: antenna reddish brown; head and thorax black (except metapleuron reddish brown); gaster and legs orange-red.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zimbabwe**: Salisbury, i.1976 (*Watsham*) (BMNH).  
Paratypes. **Zimbabwe**: 1 ♀ (BMNH). **Zaire**: 3 ♀ (MRAC). **Nigeria**: 1 ♀ (BMNH).

#### *GLAURASPIDIA* Thomson

*Glauraspidia* Thomson, 1862: 307. Type species: *Eucoela subtilis* Dahlbom [= *Cothonaspis microptera* Hartig], by subsequent designation of Foerster, 1869: 351.

*Aglaotoma* Foerster, 1869: 334. Type species: *Cothonaspis codrina* Hartig, by original designation. [Synonymised by Hellén, 1960: 9.]

*Apistophyza* Foerster, 1869: 351. Type species: *Cothonaspis microptera* Hartig, by original designation. [Synonymised by Cameron, 1890: 24.]

*Diranchis* Foerster, 1869: 360. Type species: *Diranchis copulata* Foerster, by original designation and monotypy. [Synonymised by Weld, 1952: 20.]

DIAGNOSIS. ♀ antenna 13-segmented, filiform-clavate, segments 9–13 usually with rhinaria, forming a weak club (Fig. 93); ♂ antenna filiform-flagelliform. Head viewed frontally longer than wide, frons viewed laterally protruding to form an angular shape, more so in males; occiput smooth and shining. Pronotal plate viewed frontodorsally with large fovea either side, open on lateral margins (Fig. 95), with dense woolly pubescence on either side. Mesopleuron smooth and polished, rarely finely coriaceous; mesopleural suture either absent or indistinct; scutellar cup raised above level of scutellar disc, disc reticulate-rugose to finely coriaceous, sometimes dull; propodeum viewed dorsally and laterally with dense woolly pubescence. Base of tergite 2 of gaster either with dense woolly pubescence or felt-like ring obscuring view of tergite 1 (cf. Fig. 105). Wings pubescent with apical hair fringe; radial cell open in European species, closed in the Afrotropical ones.

DISTRIBUTION. Europe, Africa, Seychelles.



DISCUSSION. Nordlander (1982) treats *Glauraspidia* as belonging to his *Chrestosema*-group of genera, comprising *Chrestosema*, *Glauraspidia*, *Pseudopsichacra*, *Odonteucoila*, *Dieucoila* and *Leptolamina*. The relationships of the group are poorly understood because of the paucity of material. Nordlander recognizes three species of *Glauraspidia* in Europe. Two new species are here recorded from the Afrotropical region. For purposes of comparison the type species of the genus is also included in the key and is redescribed.

### Key to the type species and the Afrotropical species of *Glauraspidia* Thomson

- 1 Radial cell of fore wing open on wing margin (Fig. 96).  
Wing of female short, not extending past apex of gaster, of normal length in male; hair fringe short; scutellar cup large, oval, disc reticulate-rugose. .... *microptera* (Hartig) (p. 190)
- Radial cell of fore wing closed on wing margin (Fig. 97). .... 2
- 2 Face and occipital region smooth and shining; mesoscutum smooth and polished; scutellar cup elliptical, pitted, lateral margins almost impunctate, apex reticulate. .... *scyphus* sp. n. (p. 191)
- Inner orbits of face and occiput finely sculptured; mesoscutum polished, very finely coriaceous in upper medial and lateral regions; scutellar cup long and narrow, disc rounded apically, finely sculptured (Fig. 101). .... *casca* sp. n. (p. 190)

### *Glauraspidia casca* sp. n.

(Figs 98–102)

DESCRIPTION. ♀ antenna weakly subclavate, segment 3 subequal in length to 4+5, 4–8 each progressively shorter, 11–13 with pronounced rhinaria (Fig. 98); ♂ antenna 15-segmented, filiform, segments 3–13 subequal in length, tapering apically (Fig. 99). Head viewed frontally with eyes further apart measured medially than the height of an eye; inner orbits with fine sculpturing extending from antennal sockets to about half way down eye margins; malar grooves obscured by broken striate sculpture; occiput finely sculptured, dense woolly pubescence on lateral margins. Pronotal plate with medial bridge narrow, foveae long and narrow (Fig. 100). Mesoscutum polished, finely coriaceous on upper medial and lateral surfaces, notauli absent; lateral bars of scutellum sculptured; scutellar foveae small, shallow; scutellar cup long and narrow, almost extending to apex of scutellar disc; disc rounded apically, surface almost smooth with fine broken sculpture (Fig. 101). Mesopleural suture absent; lower part of mesopleuron densely pubescent; anteroventral cavity obscure. Gaster with segment 2 the largest in lateral view, segments 3 and 4 partially visible in lateral view; apex of segment 2 and visible part of 3 coriaceous-punctate (Fig. 102); hypopygium pronounced. Wing surfaces densely pubescent, apical margins with a long hair fringe; radial cell of fore wing closed on wing margin; veins *Rs* + *M* and *M* weakly indicated. Colour: antenna yellow basally, apical segments darker; head, thorax and gaster chestnut brown; legs dark yellow.

#### MATERIAL EXAMINED

Holotype ♀, *Seychelles* (*David*) (BMNH).

Paratypes. *Seychelles*: 8 ♀, 6 ♂ (BMNH).

### *Glauraspidia microptera* (Hartig)

(Figs 93–96)

*Cothonaspis microptera* Hartig, 1840: 201. Holotype ♀, GERMANY (ZSBS) [examined].

*Eucoela subtilis* Dahlbom, 1842: 307. Holotype ♀, SWEDEN (ZI) [examined].

DESCRIPTION. ♀ antenna with segments 1–8 filiform, 9–13 swollen medially with rhinaria, forming a club (Fig. 93), segment 3 very weakly curved, as long as 4+5, 5 and 6 subequal in length, 7 and 8 subequal, each shorter than 6; ♂ antenna 15-segmented, flagelliform, segment 3 curved, longer than 4+5 (Fig. 94), apical segments tapering. Head viewed laterally, particularly in female, wedge-shaped; eyes further apart measured medially than the height of an eye; malar grooves percurrent; face with scattered setae; occipital carina pronounced. Pronotal plate (Fig. 95). Mesoscutum smooth and polished, notauli absent, upper surface with scattered pubescence; lateral bars of scutellum weakly sculptured; scutellar foveae large, deep, smooth and polished; scutellar cup oval (but variable), almost extending to apex of scutellar disc, with a large median fovea; disc rounded apically, surface with reticulate-rugose-coriaceous sculpture, viewed dorsally appearing radiate in some specimens. Mesopleural suture absent. Carinae of propodeum sub-parallel, obscured by dense woolly pubescence on either side. Gaster with segment 1 obscured by dense woolly pubescence at base of tergite 2 (cf. Fig. 102); tergite 2 the largest in lateral view, remaining

segments not visible; ventral spine of gaster with sub-basal hairs. Wings with short apical hair fringe; radial cell of fore wing open on wing margin; wings narrow. Colour: antenna orange-yellow; head, thorax and gaster blackish; legs orange-yellow.

DISTRIBUTION. Europe, not recorded from the Afrotropical region.

### *Glauraspidia scyphus* sp. n.

(Figs 97, 103–105)

DESCRIPTION. ♀ antenna moniliform, segment 3 as long as 4+5, 5–8 each shorter than 4, subequal to each other, apical 4 segments with rhinaria, forming a distinct club (Fig. 103); ♂ antenna 15-segmented, filiform, segment 3 weakly curved (Fig. 104), segment 5 swollen. Head viewed frontally with eyes slightly further apart measured medially than the height of an eye; cheeks converging; face with scattered hairs; mandibles tridentate; face smooth and polished; malar grooves percurrent; back of head smooth and polished. Mesoscutum smooth and polished, notauli absent, a row of scattered hairs in their place; lateral bars of scutellum weakly sculptured (cf. Fig. 101); scutellar cup elliptical; scutellar disc rounded apically, lateral surface almost impunctate, apex reticulate. Mesopleural suture absent; precoxal area of mesopleuron densely pubescent; anteroventral cavity obscure, not hairy. Segment 1 of gaster short, wider than long, crenulate, partially obscured by the dense woolly pubescence on the propodeum and at base of tergite 2; segment 2 the largest in lateral view, segments 3–5 visible in lateral view; apex of segment 2 and visible part of 3–5 punctate-coriaceous; hypopygium not pronounced (Fig. 105). Wing with apex broad; radial cell of fore wing closed on wing margin (Fig. 97); cubitus indicated, not pigmented. Colour: antenna yellow basally, apical segments darker; head brownish red, thorax and gaster light chestnut red; legs bright.

#### MATERIAL EXAMINED

Holotype ♀, **Ivory Coast**: Bouake, Bo'Pri, 10–13.iii.1984 (Matthews) (BMNH).

Paratypes. **Ivory Coast**: 1 ♀, 1 ♂ (BMNH). **Zaire**: 10 ♀, 18 ♂ (MRAC). **Zambia**: 2 ♀ (BMNH). **Zimbabwe**: 2 ♀ (BMNH).

REMARKS. Distinguished from the European species *microptera* by the closed radial cell, the moniliform antenna of the female and the filiform antenna of the male.

### *LEPTOPILINA* Foerster

*Leptopilina* Foerster, 1869: 348. Type species: *Cothonaspis longipes* Hartig, by original designation and monotypy.

DIAGNOSIS. ♀ antenna 13-segmented with variable number of club segments, each with rhinaria, generally clavate although sometimes slender and filiform; ♂ antenna 15-segmented, segment 3 shorter than following segments, flattened on outer margins (Fig. 106). Head narrow, eyes protruding; face viewed frontally smooth and polished with sparse hairs; malar grooves percurrent; mandibles tridentate; eyes further apart measured medially than height of an eye; viewed dorsally ocelli equally spaced, weakly raised. Pronotal plate weakly protruding, lateral foveae either side of pronotal plate broad, open on lateral margins. Mesoscutum smooth and polished, without trace of notauli, a line of hairs in their place; lateral bars of scutellum smooth and polished; scutellar fovea smooth and shallow (deep under lateral bars); scutellar disc variable in sculpture from punctate-reticulate to reticulate-rugose to nearly smooth with a few sparse rugae, sometimes more longitudinally directed (Fig. 107), apex rounded; scutellar cup (plate of Nordlander, 1982) variable in both size and shape, usually raised (cf. Figs 151, 159) smooth and shining to pitted with a large apical fovea. Mesopleuron smooth and polished; ventral border of pronotum sculptured; mesopleural suture distinct, straight or curved; metapleuron often with ridges extending from posterior margin; area below ventral margin of mesopleuron pubescent, anteroventral cavity bare; propodeal carinae distinct; propodeum not elongate, pubescence on either side dense, sculptured. Segment 1 of gaster short, wider than long, sculptured, crescent-shaped; base of segment 2 (petiole of Nordlander, 1982) widened posteriorly (Fig. 108), with a ring of hairs sometimes dense but broken on dorsal surface with a few long hairs on lateral margins behind ring of hairs (Fig. 108); tergite 2 the largest, occupying most of the area in lateral view; tergites 3–5 generally visible. Wings generally broad, rounded apically, surface pubescent, apical margins with fringe of hairs, radial cell of fore wing open or closed on wing margin. Legs of normal shape, variable between species; hind coxa with hairs on posterodorsal surface, sometimes tufted (cf. Fig. 109). Colour: antenna yellowish brown-black; head and thorax generally darker than gaster which is yellow to brown to blackish; legs yellowish.



DISCUSSION. *Leptopilina* received little attention (Weld, 1952) until Nordlander's (1980) major contribution, which has considerably improved our understanding of the genus. Nordlander recorded *Leptopilina* from the Holarctic, Afrotropical and Oriental regions and gave a key to the five European species. In this study 14 species, 9 of them new, are recognised from the Afrotropical region.

### Key to the European and Afrotropical species of *Leptopilina* Foerster

**Females** (the female of *mahensis* is unknown)

- 1 Metapleuron without ridges in upper region; scutellar cup oval (Fig. 136), surface excavate or smooth, sometimes smooth with punctures. .... 2
- Metapleuron with or without ridges in upper region; scutellar cup elongate, surface convex to smooth, if oval, ridges present in upper region of metapleuron (Fig. 167). .... 4
- 2 Mesoscutum with hairs present in place of the notauli; scutellar disc without a distinct rim (Fig. 136). .... *clavipes* (Hartig) (p. 195)
- Mesoscutum smooth and polished without notauli or hairs in the same positions; scutellar disc with a distinct rim (Fig. 135). .... 3
- 3 Antenna long and slender, segment 3 shorter than 4, club 8-segmented (Fig. 116), club segments 2 times as long as broad (Fig. 116).  
Pronotal plate with narrow medial bridge (cf. Fig. 159). .... *fimbriata* (Kieffer) (p. 196)
- Antenna short, segment 3 longer than 4, club 7-segmented (Fig. 113), club segments broader than long. .... *longipes* (Hartig) (p. 197)
- 4 Antennal segment 3 clearly shorter than 4 (Figs 114, 117); metapleuron with ridges in upper region (Fig. 167). .... 5
- Antennal segment 3 subequal to or longer than 4 (cf. Fig. 115); metapleuron with or without ridges in upper region. .... 9
- 5 Radial cell of fore wing open on wing margin (Fig. 141); antennal club 7-segmented. .... *misensus* sp. n. (p. 198)
- Radial cell of fore wing closed on wing margin (cf. Fig. 150); antennal club 7–9-segmented, with rhinaria. .... 6
- 6 Antennal club 7-segmented (Figs 117, 118). .... 7
- Antennal club 8–9-segmented (Figs 119, 120). .... 8
- 7 Club segments of antenna at least 2 times as long as broad; scutellar cup broadest medially, tapering apically, not extending to apex of disc, with radiating reticulate-rugose sculpture (Fig. 169). .... *thetus* sp. n. (p. 199)
- Club segments of antenna at least 3 times as long as broad; scutellar cup elongate, almost oval, not extending to apex of disc, with fine reticulate-coriaceous sculpture (Fig. 162) *itys* sp. n. (p. 197)
- 8 Antennal club 8-segmented (Fig. 119), apical segments of antenna dark; scutellar cup semi-oval, scutellar disc reticulate-rugose (Fig. 148); radial cell of fore wing closed on wing margin (Fig. 150). .... *apella* sp. n. (p. 194)
- Antennal club 9-segmented (Fig. 120), apical segments of antenna pale; scutellar cup widest medially, converging apically, scutellar disc with radiating striae (Fig. 143); radial cell of fore wing open on wing margin. .... *fannius* sp. n. (p. 195)
- 9 Metapleuron without ridges in upper area (Fig. 121), a single ridge sometimes present posteriorly; antenna short, 0.5 times body length, segment 3 longer than 4, apical 4–5 segments forming a club.  
Scutellar cup long and narrow; radial cell of fore wing closed, with a short radius. .... *boulardi* (Barbotin, Carton & Kelner-Pillault) (p. 195)
- Metapleuron with 2 or more ridges in upper area (Fig. 157); antenna variable in proportions. ... 10
- 10 Radial cell of fore wing open on wing margin (Fig. 122). .... 11
- Radial cell of fore wing distinctly closed on wing margin (Fig. 140). .... 12
- 11 Scutellar cup with pronounced rim, margins not converging apically (Fig. 123). .... *atraticeps* (Kieffer) (p. 194)
- Scutellar cup without distinct rim, margins converging towards apex of disc.  
Radial cell (Fig. 158). .... *faunus* sp. n. (p. 196)
- 12 Scutellar cup very broad medially, narrowing basally, converging towards apex of disc (e.g. Fig. 124). .... 13
- Scutellar cup longer than wide, not converging towards apex of disc (Fig. 125). .... 15
- 13 Metapleural ridges converging towards propodeum.  
Propodeal carinae parallel (cf. Fig. 149); radial cell (Fig. 140). .... *heterotoma* (Thomson) (p. 196)



- Metapleural ridges parallel. .... 14
- 14 Scutellar cup viewed dorsally not extending to apex of disc; antenna, head and thorax pale yellow; radial cell of fore wing as broad as long (Fig. 129), open on wing margin. .... *pisonis* sp. n. (p. 198)
- Scutellar cup viewed dorsally extending to apex of disc (Fig. 127); antenna orange basally and apically, dark medially, thorax and gaster dark brownish orange; radial cell of fore wing elongate, 2 times as long as broad medially (Fig. 128), closed on wing margin. .... *syphax* sp. n. (p. 199)
- 15 Antennal club 7-segmented, sharply defined.  
Scutellar cup without conspicuous rim, almost oval, disc finely reticulate-rugose (Fig. 125); propodeal carinae widely separated, almost parallel; scutellar disc reticulate-rugose; metapleural carinae subparallel (Fig. 131); apical segments of gaster finely punctate. .... *victoriae* Nordlander (p. 200)
- Antennal club 8-segmented (filiform, club segments defined by presence of rhinaria) (Fig. 132). .... *vesta* sp. n. (p. 200)

**Males** (the males of *atraticeps*, *itys* and *thetus* are unknown)

- 1 Metapleuron without ridges in upper region; scutellar cup oval, surface excavate or smooth, sometimes with punctures. .... 2
- Metapleuron with or without ridges in upper region; scutellar cup elongate, surface convex to smooth, if oval, ridges present in upper region of metapleuron (cf. Fig. 154). .... 4
- 2 Mesoscutum smooth and polished without notauli or hairs in the same position; scutellar disc with a distinct rim (Fig. 135). .... 3
- Mesoscutum with hairs in place of notauli (Fig. 110); scutellar disc without a rim (Fig. 110). .... *clavipes* (Hartig) (p. 195)
- 3 Antennal segment 3 distinctly shorter than 4; cubitus distinctly pigmented. .... *fimbriata* (Kieffer) (p. 196)
- Antennal segments 3 and 4 subequal in length (Fig. 113); cubitus absent. .... *longipes* (Hartig) (p. 197)
- 4 Scutellar cup tapering sharply apically, broadest medially (Fig. 124). .... 5
- Scutellar cup oval or if longer than broad not tapering apically, generally as broad apically as medially (Figs 125, 148). .... 8
- 5 Radial cell of fore wing open or closed (Figs 112, 129); metapleural ridges not converging towards propodeum, almost parallel (Fig. 130). .... 6
- Radial cell of fore wing closed (Fig. 140); metapleural ridges converging towards propodeum (Fig. 126). .... *heterotoma* (Thomson) (p. 196)
- 6 Antennal segment 3 shorter than 4 (Fig. 144). .... 7
- Antennal segments 3 and 4 subequal in length (Fig. 168).  
Scutellar cup extending to apex of scutellar disc (Fig. 127). .... *syphax* sp. n. (p. 199)
- 7 Scutellar cup viewed dorsally not extending to apex of scutellar disc, disc reticulate-rugose (Fig. 143); pronotal plate (cf. Fig. 152). .... *fannius* sp. n. (p. 195)
- Scutellar cup viewed dorsally not extending to apex of disc, with radiating striae; pronotal plate (Fig. 166).  
Propodeal carinae converging; radial cell of fore wing open. .... *misensus* sp. n. (p. 198)
- 8 Metapleuron without ridges in upper region; propodeal carinae closer together apically (Fig. 153); radial cell of fore wing closed on wing margin. .... *boulardi* (Barbotin, Carton & Kelner-Pillault) (p. 195)
- Metapleuron with ridges in upper region; propodeal carinae variable; radial cell of fore wing open or closed on wing margin. .... 9
- 9 Scutellar cup oval (cf. Fig. 148); segment 3 of antenna shorter than 4.  
Vein *Rs* + *M* of radial cell not indicated (Fig. 158). .... 10
- Scutellar cup elongate; segment 3 of antenna shorter than or subequal to 4. .... 11
- 10 Antennal segments 3 and 4 slender, curved (cf. Fig. 133); scutellar disc reticulate-rugose, scutellar cup large (cf. Fig. 123). .... *faunus* sp. n. (p. 196)
- Antennal segments 3 and 4 robust and swollen (Fig. 133); scutellar disc with radiating strigose sculpture, scutellar cup small (cf. Fig. 148). .... *mahensis* (Kieffer) (p. 198)
- 11 Antennal segments 3 and 4 subequal in length (Fig. 132) (4 weakly swollen). .... *vesta* sp. n. (p. 200)
- Antennal segment 3 distinctly shorter than 4 (Fig. 147). .... 12
- 12 Radial cell of fore wing with vein *Rs* + *M* in form of a distinctive spur (Fig. 146); antennal segment 4 swollen medially and curved, outer side flattened (Fig. 147). .... *victoriae* Nordlander (p. 200)

- Radial cell of fore wing without a distinctive spur (Fig. 150); antennal segment 4 weakly swollen medially and curved, outer side flattened.  
Pronotal plate (Fig. 159). ..... 13
- 13 Scutellar disc reticulate-rugose (Fig. 148), rim of scutellar cup thick, not converging apically; metapleural ridges parallel. .... *apella* sp. n. (p. 194)
- Scutellar disc coarsely rugose-reticulate, scutellar cup converging apically (cf. Fig. 124); metapleural ridges weakly converging towards propodeum. .... *pisonis* sp. n. (p. 198)

***Leptopilina apella* sp. n.**

(Figs 119, 148–150, 159)

DESCRIPTION. ♀ antenna weakly clavate, segments 6–13 with rhinaria, segment 3 shorter than 4 (Fig. 119); ♂ antenna with segments 3–4 curved (cf. Fig. 147). Eyes large, converging towards clypeal area, closer together than the height of an eye where they converge; malar grooves fine. Pronotal plate with medial bridge narrow, as wide as a fovea (Fig. 159). Lateral bars of scutellum broad-based, triangular; scutellar fovea smooth and shining, shallow, lenticular; scutellar cup small, oval, not extending to apex of disc; scutellar disc reticulate-rugose, apex rounded (Fig. 148). Mesopleural suture converging towards metapleuron with two ridges in upper region (cf. Fig. 167); anteroventral cavity pubescent; lateral margins of propodeum densely pubescent on under margins of carinae, weakly sculptured; propodeal carinae parallel (Fig. 149). Segment 1 of gaster in form of short crenulate ring; segment 2 with tuft of pubescence basally on lateral margins; segment 3 partially visible; gaster impunctate. Radial cell of fore wing closed on wing margin, broad apically; vein *3r-m* produced; vein *M* indicated basally, weakly pigmented (Fig. 150). Legs long and slender; hind coxa with tuft of hairs on posterodorsal margin. Colour: antenna yellow basally, segments 6–13 blackish; head blackish; thorax chestnut brown; gaster brownish yellow; legs yellow.

MATERIAL EXAMINED

Holotype ♀, **Madagascar**: Tam, Perinet, 27.iv.–3.v.1983 (Noyes & Day) (BMNH).

Paratypes. **Madagascar**: 1 ♀, 3 ♂ (BMNH). **Zaire**: 8 ♀ (MRAC).

***Leptopilina atraticeps* (Kieffer)**

(Figs 122, 123, 151)

*Ectolyta atraticeps* Kieffer, 1911: 312. Holotype ♀, SEYCHELLES (BMNH) [examined].

DESCRIPTION. ♀ antenna clavate, segments 7–13 forming a club, rhinaria weakly indicated, each segment more than 2 times as long as broad, segment 3 slightly longer than 4, less than 4+5, 4 longer than 5. Eyes oval, as far apart measured medially as the height of an eye; subantennal sutures absent. Pronotal plate projected forward; anterior part finely sculptured; lateral foveae open on either side of medial bridge, wide (Fig. 151). Mesoscutum smooth and polished, variable surface sculpture indicated through the chitin (Fig. 123); lateral bars of scutellum smooth and polished; scutellar foveae deep, polished; scutellar cup elliptical, widest medially, with a wide rim, with a large apical fovea; scutellar disc reticulate-rugose, rounded apically. Mesopleuron smooth and polished; mesopleural suture distinct, curved; metapleuron smooth and polished with 2 conspicuous ridges; anteroventral cavity obscured; sides of propodeum with dense short pubescence; propodeum almost parallel, very weakly bowed medially. Segment 1 of gaster in form of crenulate ring, wider than long; segment 2 with a dense ring of short hairs basally not completed on dorsal surface; tergites 3 and 4 partially visible. Wings not conspicuously narrow; pubescent with long apical hair fringe; radial cell of fore wing partially open on wing margin; veins *Rs* + *M* and *M* weakly indicated (Fig. 122). Legs slender; hind coxa with a tuft of pubescence postero-dorsally. Colour: antenna yellowish orange, some median segments light brown; head reddish brown; thorax and gaster orange-yellow; legs orange-yellow.

♂ unknown.

MATERIAL EXAMINED

Holotype ♀, **Seychelles**: Mahe I., Mare au Cochons (BMNH).

Paratype. **Nigeria**: 1 ♀ (BMNH).

REMARKS. Similar in many respects to *faunus*, but differs in the shape of the radial cell and the scutellar cup.



***Leptopilina boulandi* (Barbotin, Carton & Kelner-Pillault)**

(Figs 115, 121, 152, 153)

*Charips mahensis* Kieffer, 1911: 313. Holotype ♂, SEYCHELLES (BMNH) [examined]. [Junior secondary homonym in *Leptopilina* of *Erisphagia mahensis* Kieffer (see p. 198).] [Synonymised by Nordlander, 1980: 432.]

*Cothonaspis* (*Cothonaspis*) *Boulandi* Barbotin, Carton & Kelner-Pillault, 1979: 20. Holotype ♀, GUADELOUPE (MNHN) [not examined].

**DESCRIPTION.** ♀ antenna clavate, the 4 or 5 apical segments forming a club, each of club segments with rhinaria, each a little longer than broad, generally darker than the yellow basal segments, segment 3 as long as 4+5, 4 longer than 5, 5 and 6 subequal in length, 7 longer than 6 (Fig. 115); ♂ antenna 15-segmented, filiform, segment 3 shorter than 4, 4 curved, swollen, longer than 5. Eyes almost round, further apart than the height of an eye measured medially; subantennal sutures prominent on lower face, sparse hairs present; malar grooves percurrent. Pronotal plate projected forward; lateral foveae long and narrow (Fig. 152). Mesoscutum smooth and polished, notauli absent; lateral bars of scutellum smooth and polished; scutellar foveae shallow; scutellar cup long and narrow, widest medially, apex weakly converging, apex with a large fovea, area in front weakly convex, sculptured; scutellar disc with radiating ridges, apex of disc rounded. Mesopleuron smooth and polished; mesopleural suture distinct, curved; metapleuron with one or two incomplete ridges (Fig. 121); nucha short, weakly pubescent; propodeal carinae closer together in upper half, bowed medially. Segment 1 of gaster crenulate, in form of a crescent; segment 2 widened dorsally, hairy ring at base very thin, only a few hairs present laterally; visible parts of segments 3–5 punctate. Fore wings not conspicuously narrow, pubescent, apical hair fringe long; radial cell of fore wing closed on margin; *2r-m* distinct; *Rs + M* and *M* weakly indicated. Legs robust; hind coxa without a tuft of hairs postero-dorsally. Colour: apical segments of antenna brownish black, basal segments yellow; head, thorax and gaster brownish black-chestnut; legs yellow.

**MATERIAL EXAMINED**

*Charips mahensis* Kieffer, holotype ♂, **Seychelles** (*Percy Sladen Trust Expedition*) (BMNH).

**Aldabra:** 1 ♀ (BMNH). **Guadeloupe:** 1 ♀, 1 ♂ (BMNH). **Madagascar:** 4 ♀ (BMNH). **South Africa:** 10 ♀ (BMNH). **Zaire:** 32 ♀, 33 ♂ (MRAC). **Zambia:** 4 ♀ (BMNH). **Zimbabwe:** 2 ♀, 1 ♂ (BMNH).

**REMARKS.** Separated from all other species in the genus by the absence of metapleural ridges, form of antenna and scutellar cup. It is a solitary primary internal parasite of *Drosophila melanogaster* Meigen (see Nordlander, 1980).

***Leptopilina clavipes* (Hartig)**

(Figs 110, 136)

*Cothonaspis clavipes* Hartig, 1841: 357.

**REMARKS.** This species is included in the key for comparative purposes. Nordlander (1980) gives a description and synonymy. At present *clavipes* is known to occur in Europe and North America but it has not been found in the Afrotropical region.

***Leptopilina fannius* sp. n.**

(Figs 120, 143, 144, 154, 155, 156)

**DESCRIPTION.** ♀ antenna filiform, segments 5–13 with rhinaria, segment 3 shorter than 4, subequal to 5, apical two segments pale (Fig. 120); ♂ antenna 15-segmented, filiform, segment 3 shorter than 4, weakly curved (Fig. 144). Eyes oval, as far apart measured medially as the height of an eye; face smooth and polished; malar grooves percurrent. Pronotal plate weakly protruding; medial bridge broad (cf. Fig. 159). Mesoscutum smooth and polished; lateral bars of scutellum broad basally, short; scutellar cup longer than wide, not extending to apex of disc, widest medially, converging apically (Fig. 143); scutellar disc reticulate-rugose laterally, rounded apically (sometimes the margins are striated). Mesopleuron smooth and polished; mesopleural suture almost straight; metapleuron with three distinct ridges, the upper ridge branched (Fig. 154); anteroventral cavity large, hairless; lateral margins of propodeum crenulate, sparsely pubescent; propodeal carinae bowed (cf. Fig. 161). Segment 1 of gaster in form of crenulate ring, wider than long; tergite 2 with a few sparse hairs on lateral margins of base, apical half densely punctate; visible parts of segments 3 and 4 punctate. Fore wing relatively broad, rounded apically, surfaces pubescent, apical margins with a fringe of hairs; radial cell of fore wing closed on margin, weakly pigmented, broad



apically; vein  $2r-m$  not projecting, merging into vein  $M$ ; vein  $Rs + M$  not indicated (Fig. 155). Legs robust; hind coxa stout, a few hairs present on postero-dorsal margin. Colour: antenna yellow basally, dark medially, apical two segments pale yellow; head and thorax black, except metapleuron orange-brown; legs orange-yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Massif Ruwenzori, Kyandolire, 1700 m, Camp des Gardes, 7–15.x.1952 (*Vanschuytbroeck & Kekenbosch*) (MRAC).

Paratypes. **Zaire**: 1 ♀, 6 ♂ (MRAC).

REMARKS. Separated from *vesta* by the relative proportions of the antennal segments and the form of the scutellar cup.

### *Leptopilina faunus* sp. n.

(Figs 157, 158)

DESCRIPTION. ♀ antenna clavate, segments 7–13 with rhinaria, segment 3 longer than 4, 5 and 6 subequal, each shorter than 4 (cf. Fig. 156); ♂ antenna 15-segmented, segment 3 shorter than 4, both slender and curved (cf. Fig. 137). Eyes almost round, further apart measured medially than the height of an eye; malar grooves percurrent; face smooth and polished, a few sparse hairs present in clypeal region. Pronotal plate weakly protruding; lateral foveae open (but not readily appreciated); medial bridge broad (cf. Fig. 151). Mesoscutum smooth and polished; lateral bars of scutellum broad basally, longer than wide; scutellar foveae lenticular, smooth and shallow; scutellar cup elongated, not extending to apex of disc, widest medially, tapering apically, apical fovea large; scutellar disc reticulate-rugose, rounded apically. Mesopleuron smooth and polished; mesopleural suture weakly curved; metapleuron with two strong ridges in upper quarter converging towards margins of propodeum (Fig. 157); anteroventral cavity pubescent; lateral margins of propodeum sculptured, partially covered with pubescence; propodeal carinae widely spaced, weakly bowed. Segment 1 of gaster in form of crenulate ring; tergite 2 with a few hairs at lateral margins of base, apical margins sparsely punctate; segments 3 and 4 partially visible, punctate. Fore wing broad, wing surfaces pubescent with apical hair fringe; radial cell of fore wing partially open on wing margin; vein  $2r-m$  weakly projecting; veins  $M$  and  $Rs + M$  weakly indicated by pigmentation (Fig. 158). Legs slender; hind coxa with a few hairs on posterodorsal margin. Colour: antenna orange-yellow basally, brownish yellow apically, apical segment lighter than rest; head and thorax brown, metapleuron orange-brown; gaster chestnut brown; legs orange-yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Nyasheke (Volc. Nyamuragira), 1820 m, 14–26.vi.1935 (*de Witte*) (MRAC).

Paratypes. **Zaire**: 3 ♀, 5 ♂ (MRAC).

REMARKS. Distinguished from *atriceps* by the shape of the scutellar cup and radial cell.

### *Leptopilina fimbriata* (Kieffer)

(Figs 111, 116, 135, 137, 138)

*Eucoela fimbriata* Kieffer, 1901: 175.

REMARKS. This species is included in the key for comparative purposes. Nordlander (1980) gives a full synonymy, description and bionomic information. It has not been found outside Europe.

### *Leptopilina heterotoma* (Thomson)

(Figs 124, 126, 140, 160)

*Eucoila heterotoma* Thomson, 1862: 403. Holotype ♀, SWEDEN (ZI) [examined].

*Ganaspis monilicornis* Kieffer, 1904: 622. Lectotype ♀, FRANCE (MA) [not examined]. [Synonymised by Nordlander, 1980: 430.]

*Ganaspis subnuda* Kieffer, 1904: 64. Holotype ♂, CANARY IS (not located). [Synonymised by Nordlander, 1980: 430.]

*Erisphagia philippinensis* Kieffer, 1916: 282. Lectotype ♀, LOS BANOS (MNHN) [not examined]. [Synonymised by Nordlander, 1980: 430.]

*Pseudeucoila bochei* Weld, 1944: 65. Holotype ♀, U.S.A. (USNM) [examined]. [Synonymised by Nordlander, 1980: 461.]

**DESCRIPTION.** ♀ antenna weakly clavate, segments 3 and 4 subequal in length, 5 shorter than 4, apical 7 segments with rhinaria forming a club (Fig. 160); ♂ antenna 15-segmented, filiform, segment 3 shorter than 4, 4 twisted and swollen medially (Fig. 137). Face smooth and polished with sparse hairs; anterior tentorial pits minute; malar grooves finely indicated; head viewed dorsally as wide as thorax; eyes large; occipital carinae distinct. Pronotal plate projected forward; medial bridge broad; anterior plate sculptured; pronotum either side of plate pubescent. Mesoscutum smooth and polished without trace of notauli; lateral bars of scutellum smooth and polished; scutellar fovea deep, lenticular; scutellar disc smooth to reticulate-rugose with scattered hairs, rounded apically; scutellar cup smooth and polished, convex in front of apical pit, long, widest above medial area, converging apically and narrow (Fig. 124). Mesopleuron smooth and polished; mesopleural suture distinct, weakly curved; metapleuron depressed above ridges 1 and 3, ridges 1, 2 and 3 entire (Fig. 126); lateral margins of propodeum below metanotal plate pubescent; propodeal carinae sub-parallel, wide (cf. Fig. 150). Segment 1 of gaster in form of a narrow ring, sculptured, weakly inclined posteriorly; tergite 2 with ring of dense pubescence ventrally, not complete on dorsal surface; tergite 3 partially visible; apical margins of tergite 2 and whole of visible parts of 3 punctate (cf. Fig. 108). Wing surfaces pubescent, apical margins with fringe of hairs; radial cell of fore wing closed on margin; vein *Rs* as long as vein *2r*; vein *M* indicated, not pigmented (Fig. 140). Legs slender; hind coxa with distinct tuft of hairs on posterodorsal surface. Colour: antenna yellow basally, darker apically; head black; thorax and gaster dark brown-black.

#### MATERIAL EXAMINED

*Eucoila heterotoma* Thomson, holotype ♀, Sweden: Skåne, Baggeboda (ZI).

**Madagascar:** 1 ♀ (MRAC). **Palestine:** 1 ♀, 1 ♂ (BMNH). **Zaire:** 1 ♀ (MRAC).

**REMARKS.** The specimens from Madagascar and Palestine are only tentatively placed as this species because the apical segments of the antenna are white. *L. heterotoma* is world-wide in distribution (Nordlander, 1980). The species is a solitary primary internal parasitoid of *Drosophila* larvae and it has been widely studied in Europe and the U.S.A.

### *Leptopilina itys* sp. n.

(Figs 118, 161, 162)

**DESCRIPTION.** ♀ antenna weakly clavate, segments 7–13 with rhinaria, 4 times as long as broad, segment 3 shorter than 4, 4–6 subequal in length (Fig. 118). Eyes large, almost round, further apart measured medially than the height of an eye; face smooth and polished with sparse scattered hairs; malar grooves very fine, percurrent. Pronotal plate protruding; medial bridge as wide as a lateral fovea. Mesoscutum smooth and polished; lateral bars of scutellum broad-based, triangular; scutellar fovea wider than long, shallow; scutellar cup elongate, not extending to apex of disc, with a large apical fovea; scutellar disc finely reticulate-rugose, apex rounded (Fig. 162). Mesopleuron smooth and polished; mesopleural suture almost straight; metapleuron with two ridges in upper region, parallel, widely spaced (cf. Fig. 131); anteroventral cavity large, pubescent; lateral margins of propodeum sculptured, partially concealed by pubescence; propodeal carinae closer together anteriorly (Fig. 161). Segment 1 of gaster in form of a crescent-shaped crenulate ring, partially visible; lateral margins of base of tergite 2 with a ring of hairs, thin dorsally, thicker ventrally; tergites 3–5 partially visible in lateral view, sparsely punctate. Fore wing relatively narrow compared with other species in the genus, wing surfaces pubescent with apical hair fringe; radial cell of fore wing closed on wing margin; vein *2r-m* weakly protruding; veins *M* and *Rs* + *M* not indicated. Legs long and slender; hind coxa with a few short hairs on posterior dorsal margin. Colour: antenna yellow basally, apical 5–6 darker; head, thorax and gaster dark brownish black; legs yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Zimbabwe:** Salisbury, Chishawasha, iii.1980 (*Watsham*) (BMNH).

Paratype. **Zaire:** 1 ♀ (MRAC).

**REMARKS.** The length of the antennal segments, shape of the scutellar cup and the sculpture of the scutellar disc separate this species from *thetus*.

### *Leptopilina longipes* (Hartig)

(Figs 106–109, 113, 139)

*Cothonaspis longipes* Hartig, 1841: 356.

**REMARKS.** This European species is included in the key for comparative purposes. It is the type species of the genus. Nordlander (1980) gives a description.



***Leptopilina mahensis* (Kieffer)**

(Figs 133, 163, 164)

*Erisphagia mahensis* Kieffer, 1911: 312. Holotype ♂, SEYCHELLES (BMNH) [examined].

DESCRIPTION. ♀ unknown.

♂ antenna 15-segmented, filiform, segment 3 shorter than 4, weakly swollen apically, 4 curved and swollen medially (Fig. 133). Face smooth and polished; eyes large, protruding; anterior tentorial pits distinct; malar grooves percurrent but finely indicated; a few sparse hairs present; head viewed dorsally as wide as thorax; occipital carinae pronounced. Pronotal plate projected forward; posterior plate angled; medial bridge narrow; lateral foveae partially open (cf. Fig. 149). Mesoscutum smooth and polished, without trace of notauli or hairs in their place; lateral bars of scutellum polished; scutellar foveae large, deep and smooth; scutellar disc rounded apically, surface reticulate-rugose; scutellar cup almost round apically, narrower basally with a pronounced rim, apical third with a large pit or fovea (cf. Fig. 148). Mesopleuron smooth and polished; mesopleural suture percurrent, almost straight; metapleuron polished and strongly ridged in anterodorsal corner; anteroventral cavity sculptured; propodeum not elongated in lateral view; nucha distinct; viewed dorsally propodeal carinae almost parallel, weakly bowed medially (Fig. 163). Segment 1 of gaster in form of ring or collar, crenulate, widened posteriorly; tergite 2 occupying the whole area of gaster in lateral view with a few hairs basally on lateral margins. Wing surfaces pubescent with apical hair fringe long; radial cell of fore wing closed, longer than wide; veins *Rs* + *M* and *M* absent (Fig. 164). Legs of normal shape and proportions; coxae with sparse hairs, hind coxa without a tuft of hairs. Colour: antenna orange-yellow; head and thorax light brown; gaster chestnut red; legs yellow.

## MATERIAL EXAMINED

Holotype ♂, Seychelles: Mahe I., Mare Cochons district, 1000–2000 ft, 26.i.–2.ii.1909 (BMNH).

REMARKS. Because the female is unknown the affinities of this species are uncertain. The male is separated from *faunus* by antennal, scutellar disc and radial cell characters.

***Leptopilina misensus* sp. n.**

(Figs 114, 141, 165–167)

DESCRIPTION. ♀ antenna filiform, segments 5–13 with weak rhinaria, segment 3 shorter than 4, 4 subequal to 5, 6–13 subequal, apical segments lighter than rest of antenna (Fig. 114); ♂ antenna 15-segmented, filiform, segment 3 shorter than 4, 4 weakly swollen medially, longer than 5 (Fig. 165). Eyes almost round, further apart than the height of an eye measured medially; face smooth and polished; malar grooves percurrent. Pronotal plate weakly projecting; lateral foveae long and narrow (Fig. 166). Mesoscutum smooth and polished, without trace of notauli; lateral bars of scutellum smooth and polished; scutellar foveae broad basally; scutellar cup longer than wide with apical fovea widest medially, tapering or converging apically; scutellar disc with aberrant reticulate-rugose sculpture, rounded apically. Mesopleuron smooth and polished; mesopleural suture distinct, weakly curved; metapleuron with 2 ridges, almost parallel; anteroventral cavity large, hairless (Fig. 167); lateral margins of propodeum crenulate; propodeal carinae parallel (cf. Fig. 163). Segment 1 of gaster in form of crescent-shaped crenulate ring; tergite 2 occupying almost the whole visible area in lateral view, with a few hairs on the lateral margins basally; tergites 3 and 4 partially visible; apex of tergite 2 and visible parts of 3 and 4 punctate. Fore wing relatively broad, apical margins rounded, with a fringe of hairs, wing surfaces pubescent; radial cell of fore wing open on wing margin, broad apically; vein *2r-m* weakly projecting; *Rs* + *M* not indicated (Fig. 141). Legs slender; hind coxa without a tuft of hairs posterodorsally. Colour: antenna dark yellow basally, brownish medially, apical segments sometimes lighter; head, thorax and gaster brownish yellow.

## MATERIAL EXAMINED

Holotype ♀, Zaire: Nyasheke (volc. Nyamuragira), 1820 m, 14–26.[?month].1935 (*de Witte*) (MRAC).

Paratypes. Zaire: 3 ♀, 18 ♂ (MRAC). Uganda: 2 ♂ (BMNH).

REMARKS. This species has characters in common with *heterotoma* in the scutellar cup, but the antennal characters and open radial cell enable it to be recognised easily.

***Leptopilina pisonis* sp. n.**

(Figs 129, 130)

DESCRIPTION. ♀ antenna clavate, segments 7–13 with rhinaria, swollen medially, segment 3 longer than 4, 4 longer than 5, 5 and 6 subequal (cf. Fig. 156); ♂ antenna filiform, segment 3 shorter than 4, 4 swollen



medially (cf. 137). Eyes oval, further apart measured medially than the height of an eye; face smooth and polished; malar grooves percurrent. Pronotal plate weakly protruding; medial bridge as wide as a lateral fovea (cf. Fig. 159). Mesoscutum smooth and polished, without trace of notauli; lateral bars broad, short and triangular; scutellar foveae lenticular, shallow; scutellar cup elongate, broadest medially, weakly converging apically, not extending to apex of disc; scutellar disc with large reticulate-rugose sculpturing, apex rounded (cf. Fig. 124). Mesopleuron smooth and polished; mesopleural suture weakly curved; metapleuron weakly ridged in upper quarter (Fig. 130); anteroventral cavity pubescent; lateral margins of propodeum partially obscured by dense pubescence, visible part crenulate; propodeal carinae weakly bowed (cf. Fig. 163). Segment 1 of gaster in form of crescent-shaped crenulate ring; lateral margins of base of tergite 2 with dense pubescence ventrally, thin dorsally; tergites 3–6 partially visible in lateral view; apical margin of tergite 2 and whole of visible parts of 3–6 punctate. Fore wing moderately broad, wing surfaces pubescent with apical hair fringe; radial cell of fore wing partially open on wing margin; vein *2r-m* not projecting; veins *M* and *Rs + M* not indicated (Fig. 129). Legs long and slender; hind coxa with a tuft of hairs on posterodorsal margin. Colour: antenna pale yellow basally, darkish medially, pale yellow apically; head, thorax and gaster orange-brown; legs pale yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Eala, v.1935 (*Ghesquiere*) (MRAC).

Paratypes. **Zaire**: 30 ♀, 8 ♂ (MRAC).

REMARKS. Similar to *syphax* but differing in the shape and size of the scutellar cup, the radial cell and the colour pattern.

### *Leptopilina syphax* sp. n.

(Figs 127, 128, 134, 142, 168)

DESCRIPTION. ♀ antenna clavate, segments 7–13 subequal in length with rhinaria, 3 and 4 subequal in length, 5 shorter than 4, 6 shorter than 5, apical three segments lighter than median segments (Fig. 168); ♂ antenna 15-segmented, filiform, 3–5 subequal in length (Fig. 142). Eyes oval, as far apart as the height of an eye measured medially; face smooth and polished; malar grooves percurrent. Pronotal plate projecting; medial bridge broad. Mesoscutum smooth and polished, without trace of notauli; lateral bars of scutellum long, broad basally; scutellar cup longer than wide, extending to apex of disc, widest medially, converging apically (Fig. 127), apical fovea large; scutellar disc areolate-reticulate-rugose, rounded apically (Fig. 127). Mesopleuron smooth and polished; mesopleural suture almost straight; metapleuron with two ridges, weakly converging towards the propodeum; anteroventral cavity large, hairless (Fig. 134); lateral margins of propodeum canalicate, weakly pubescent; propodeal carinae obscured by pubescence. Segment 1 of gaster in form of a crenulate ring, wider than long; tergite 2 with a few hairs on lateral margins basally; tergites 3–5 partially visible; apex of tergite 2 and visible parts of 3–5 punctate. Fore wing relatively broad, rounded apically, wing surfaces pubescent with apical hair fringe; radial cell of fore wing closed on wing margin; vein *2r-m* weakly projecting; vein *M* complete but faintly represented; vein *Rs + M* not indicated. Legs slender; hind coxa without a tuft of hairs posterodorsally. Colour: basal segments of antenna orange-yellow, medial segments brownish, apical three segments light yellow; head and thorax blackish; metapleuron and gaster orange-brown; legs orange-yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: R. Kilalamatambo (affl. Lusinga), 17.vii.1945 (*de Witte*) (MRAC).

Paratypes. **Zaire**: 12 ♀, 24 ♂ (MRAC).

REMARKS. This species is closely related to *pisonis* but characteristics in the radial cell, scutellar cup and colour pattern enable them to be separated.

### *Leptopilina thetus* sp. n.

(Figs 112, 117, 169)

DESCRIPTION. ♀ antenna weakly clavate, segment 3 shorter than 4, longer than 5, 5 and 6 subequal in length, 7–13 three times as long as broad, with rhinaria (Fig. 117). Eyes large, round, as far apart as the height of an eye measured medially; face smooth and polished; malar groove not visible; a few hairs present in clypeal area. Pronotal plate weakly projecting; medial bridge narrow, not as wide as a lateral fovea (cf. Fig. 159). Mesoscutum smooth and polished; lateral bars of scutellum broad basally, wide apically; scutellar foveae lenticular, smooth and shallow; scutellar cup extending almost to apex of scutellar disc, longer than wide, widest medially, converging apically (Fig. 169), apical fovea large, rim of scutellar cup

thick; scutellar disc with radiating reticulate-rugose sculpture, apex rounded. Mesopleuron smooth and polished; mesopleural suture weakly curved; metapleuron with two widely spaced parallel ridges in upper region; anteroventral cavity large, a few setae present; lateral margins of propodeum obscured by dense pubescence; propodeal carinae parallel. Segment 1 of gaster in form of crenulate ring, wider than long; tergite 2 with a tuft of hairs on lateral margins, thinner on dorsal surface; tergites 3–5 partially visible; apex of segment 2 and visible parts of 3–5 with sparse punctures. Fore wing moderately broad, wing surfaces pubescent with apical hair fringe; radial cell of fore wing closed on wing margin; vein *2r-m* weakly projecting; veins *M* and *Rs + M* not indicated (Fig. 112). Legs short; hind coxa with a few hairs on posterodorsal surface. Colour: antenna pale yellow; head, thorax and gaster pale chestnut brown; legs orange-yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **South Africa**: Port St John, Pondoland, 10–31.vii.1923 (*Turner*) (BMNH).

Paratypes. **South Africa**: 2 ♀ (BMNH). **Zaire**: 3 ♀ (MRAC).

REMARKS. This species is separated from closely related species by the form of the antenna and the elongated scutellar cup.

### *Leptopilina vesta* sp. n.

(Figs 132, 145, 170)

DESCRIPTION. ♀ antenna filiform, segments 3–13 with rhinaria, segment 3 shorter than 4, 4 and 5 subequal in length (Fig. 132); ♂ antenna 15-segmented, filiform, segments 3 and 4 subequal in length, 4 weakly swollen (Fig. 145). Eyes large, round, as far apart measured medially as height of an eye; face smooth and polished; malar grooves finely indicated. Pronotal plate protruding; medial bridge as broad as a lateral fovea (cf. Fig. 159). Mesoscutum smooth and polished; lateral bars of scutellum triangular, short; scutellar foveae lenticular; scutellar cup longer than wide, not extending to apex of disc; scutellar disc reticulate-rugose, apex rounded (cf. Fig. 169). Mesopleuron smooth and polished; mesopleural suture converging towards metapleuron; metapleuron with three distinct ridges in upper region (cf. Fig. 134); anteroventral cavity pubescent (cf. Fig. 134); lateral margins of propodeum partially obscured by dense pubescence; propodeal carinae bowed (cf. Fig. 163). Segment 1 of gaster in form of narrow ring, weakly crenulate; tergite 2 with a tuft of pubescence basally on lateral margins; apex of tergite 2 and visible part of tergite 3 finely punctate. Fore wing broad, apex rounded, wing surfaces pubescent with apical fringe of hairs; radial cell of fore wing closed on wing margin, narrow apically; vein *2r-m* protruding; veins *M* and *Rs + M* weakly indicated, not pigmented (Fig. 170). Legs long and slender; hind coxa without tuft of hairs on posterodorsal margin. Colour: antenna yellowish basally, merging to brownish yellow apically; head and thorax dorsally blackish; mesopleuron and gaster brownish orange; legs yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Cameroun**: Nkoemvon, 1980 (*Jackson*) (BMNH).

Paratypes. **Cameroun**: 1 ♂ (BMNH). **Zaire**: 2 ♀, 8 ♂ (MRAC).

REMARKS. The filiform antenna separates this species from all others in this genus.

### *Leptopilina victoriae* Nordlander

(Figs 125, 131, 146, 147)

*Leptopilina victoriae* Nordlander, 1980: 447. Holotype ♀, SEYCHELLES (Nordlander coll.) [not examined].

DESCRIPTION. ♀ antenna clavate, segments 7–13 with rhinaria forming a club, segment 3 longer than 4, 5 and 6 subequal, each shorter than 4 (cf. Fig. 156); ♂ antenna 15-segmented, segment 3 shorter than 4, 4 swollen medially, bent, outer surface flattened (Fig. 147). Eyes large, almost round, further apart measured medially than the height of an eye; face smooth and polished with sparse hairs around clypeal area; malar grooves fine, percurrent. Pronotal plate protruding; lateral foveae round, narrow; medial bridge slightly broader than a fovea. Mesoscutum smooth and polished; lateral bars of scutellum short, broad based; scutellar cup elongate, weakly converging apically with a large apical fovea; scutellar disc rounded apically, surface reticulate-rugose (Fig. 125). Mesopleural suture directed strongly down towards margin of anteroventral cavity; metapleuron with three ridges (Fig. 131); anteroventral cavity hairless; lateral margins of propodeum crenulate, partially obscured by dense pubescence; propodeal carinae very weakly bowed, almost parallel (cf. Fig. 149). Segment 1 of gaster in form of a crescent, crenulate; lateral



margins of base of tergite 2 with a thin ring of hairs and a few longer hairs behind them; tergites 3–5 partially visible, impunctate. Fore wing moderately broad apically, wing surfaces pubescent, apical margins with a hair fringe; radial cell of fore wing closed on wing margin, broad apically; vein *2r-m* projected; vein *Rs + M* not indicated; vein *M* weakly indicated by pigmentation (Fig. 146). Legs slender; hind coxa swollen, with a tuft of hairs on posterodorsal margin. Colour: antenna yellow basally, apical segments darker; head, thorax and gaster dark chestnut brown; legs orange-yellow.

#### MATERIAL EXAMINED

**Seychelles:** 14 ♀, 46 ♂ (including 1 ♀, 1 ♂ paratypes of *L. victoriae* Nordlander, labelled ES 551 and 552) (BMNH). **Uganda:** 2 ♀ (BMNH). **Zaire:** 32 ♀, 18 ♂ (MRAC). **South Africa:** 1 ♀ (BMNH).

**REMARKS.** Separated from *vesta* by antennal, pronotal plate and scutellar cup characters. Nordlander (1980) considers *victoriae* probably to be a parasitoid of *Drosophila malerkotliana* Parshad & Paika. Some of the specimens from Zaire are paler and a few have pale apical antennal segments.

### **SIRENES gen. n.**

Type species: *Sirenes sinis* sp. n.

**DIAGNOSIS.** ♀ antenna 13-segmented, filiform-subclavate with from 3–8 segments with rhinaria, basal segments finely granulate; ♂ antenna 15-segmented, filiform-flagellate apically, segment 3 shorter or subequal to 4. Head viewed frontally longer than broad, eyes measured medially as far or further apart as height of an eye; weakly coriaceous in region of antennal sockets and eye margins; supra-clypeal area raised; face with sparse hairs; malar grooves weakly indicated with weak striations on either side; viewed dorsally ocellar area weakly coriaceous (Fig. 172), extending to occipital carina. Pronotal plate viewed dorsally rectangular (cf. Fig. 191), lateral fovea on either side weak and open; pronotum either side of pronotal plate densely pubescent. Mesoscutum polished medially, sometimes strongly coriaceous on lateral margins; notauli not indicated, parapsidal furrows or lateral lines present apically (Fig. 189). Mesopleuron polished, sometimes very weakly coriaceous, mesopleural suture or carina absent; subpleural area densely pubescent, antero-ventral cavity obscured by dense woolly pubescence enveloping the lateral margins of propodeum; metapleuron smooth and polished. Lateral bars of scutellum strongly striate; scutellar fovea large; scutellar disc coriaceous to weakly broken striate, almost square apically; scutellar cup (scutellar plate) long and narrow, rarely oval, not reaching apical margin of scutellar disc, apical fovea long and narrow. Propodeum completely covered dorsally and laterally with dense woolly pubescence. Segment 1 of gaster almost completely obscured by ring of dense woolly pubescence at base of tergite 2; tergites 2–5 (or less often 2–4) visible in lateral view, tergite 2 occupying most of visible area; apex of tergite 2 and visible parts of tergites 3–4 sculptured. Wing surfaces pubescent, margins ciliate, longest apically; fore wing with radial cell open or closed. Legs long, with scattered pubescence.

**DISTRIBUTION.** Afrotropical Region.

**DISCUSSION.** *Sirenes* is most closely related to *Glauraspidia* but the sculpture of the head, mesoscutum and mesopleuron together with the usually closed radial cell of the fore wing and the form of antenna in both male and female distinguish it.

#### **Key to the species of *Sirenes* gen. n.**

##### **Females**

- 1 Antenna filiform, rhinaria present on the 8–9 apical segments, segment 3 shorter than 4 (4–13 subequal in length) (Fig. 174); scutellar cup sharply declined apically (Fig. 175). *spio* sp. n. (p. 204)
- Antenna weakly clavate, rhinaria present on a lesser number of apical segments, segments 3 and 4 subequal in length; scutellar cup either weakly or sharply declined (Fig. 175, 176). ..... 2
- 2 Strong rhinaria present on the 3 apical segments of antenna, segment 10 with weak rhinaria (Fig. 177); scutellar cup tear-shaped, sharply declined (Fig. 176); gaster finely punctate apically (Fig. 193); mesopleuron weakly coriaceous; radial cell of fore wing open on margin (Fig. 194). ..... *silenus* sp. n. (p. 203)
- Strong rhinaria present on 4 or more apical segments of antenna; scutellar cup long and narrow or weakly oval apically; gaster either punctate or sculptured; mesopleuron sculptured or polished; radial cell of fore wing closed. .... 3
- 3 Rhinaria present on the 4 apical segments of antenna, forming a weak but distinct club (Fig. 178); eye margins smooth and polished.

Mesopleuron smooth and polished; gaster finely coriaceous apically (cf. Fig. 195).

*steropes* sp. n. (p. 204)



- Rhinaria present on 5 or more apical segments; outer lateral margins of eyes polished or sculptured. .... 4
- 4 Rhinaria present on 5 apical segments of antenna (Fig. 179). .... 5
- Rhinaria present on more than 5 apical segments of antenna (Figs 171, 180). .... 7
- 5 Antenna moniliform, segment 3 as long as 4+5, 4–8 a little longer than broad (Fig. 179).  
Scutellar disc coriaceous to longitudinally striate (Fig. 189). .... *orbilus* sp. n. (p. 202)
- Antenna weakly sub-clavate, segment 3 shorter than 4+5, 4–8 at least twice as long as broad (Fig. 181). .... 6
- 6 Mesopleuron finely and densely coriaceous (Fig. 182); outer lateral margins of eyes coriaceous.  
*syrtes* sp. n. (p. 205)
- Mesopleuron smooth and polished; outer lateral margins of eyes smooth and polished.  
*flocus* sp. n. (p. 202)
- 7 Rhinaria present on the 6 apical segments of antenna (Fig. 180); mesopleuron smooth and polished; gaster densely but finely coriaceous on apical half; scutellar cup declined (cf. Fig. 189); outer lateral margins of eyes smooth and polished. .... *syrinx* sp. n. (p. 205)
- Rhinaria present on the 7 apical segments of antenna; mesopleuron finely coriaceous (cf. Fig. 182); gaster coriaceous on apical half; scutellar cup weakly declined; outer lateral margins of eyes reticulate. .... *sinis* sp. n. (p. 203)

### Males

At present males cannot be distinguished reliably. Although most species have males listed under material examined they have been associated mainly on the basis of collection data. The males tend to have differences in antennal lengths and shape as well as sculpture differences on the mesoscutum and mesopleuron.

### *Sirenes floccus* sp. n.

(Figs 186–188)

DESCRIPTION. ♀ antenna weakly subclavate, segment 3 shorter than 4+5, 4–13 subequal in length, segments 9–13 weakly swollen medially, with rhinaria, forming a weak club (Fig. 186). Head viewed frontally with eyes further apart, measured medially, than the height of an eye; frons and lateral areas of face smooth and polished; face and mandibular area with a few scattered hairs; occiput and vertex finely coriaceous; lateral margins of occipital carina with a line of dense pubescence. Pronotal plate with lateral fovea very small (cf. Fig. 191). Mesoscutum finely reticulate-coriaceous; lateral bars of scutellum coriaceous; scutellar cup almost reaching apex of scutellar disc, weakly rounded apically. Mesopleuron smooth and polished; anteroventral cavity hairless. Gaster with apex of tergite 2 reticulate; visible parts of 3–5 finely sculptured (Fig. 187). Fore wing with radial cell closed, longer than wide, veins *Rs* + *M* and *M* indicated, weakly pigmented (Fig. 188). Colour: antenna dark brown; head, thorax and gaster chestnut brown; legs orange-yellow.

♂ unknown.

### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Massif Ruwenzori, Mont Ngulingo pres. Nyamgaleke, 2500 m, ex I.N.A., 3.vi.1954 (*Vanschuytbroeck & Synave*) (MRAC).

Paratypes. **Zaire**: 5 ♀ (MRAC).

REMARKS. Separated from *syrtes* by mesopleural and eye margin differences.

### *Sirenes orbilus* sp. n.

(Figs 179, 189, 190)

DESCRIPTION. ♀ antenna moniliform, segment 3 subequal to 4+5, 4 longer than 5, 5–8 subequal, each slightly longer than wide, segments 9–13 forming a club, with rhinaria (Fig. 179); ♂ antenna with segment 3 shorter than 4, 4 longer than 5, 5–15 subequal, becoming thinner apically. Head viewed frontally with eyes further apart, measured medially, than the height of an eye; frons and lateral areas of face smooth and polished; mandibular area with a few scattered hairs; occiput and vertex with fine reticulate-coriaceous sculpture; lateral margins of occipital carina with a line of dense pubescence. Pronotal plate with lateral fovea very small and open (this is difficult to appreciate) (cf. Fig. 191). Mesoscutum finely sculptured on lateral margins, polished medially (Fig. 189); lateral bars of scutellum striated, scutellar fovea smooth and polished; scutellar disc with coriaceous-reticulate-striate sculpture; scutellar cup narrow, tear drop-

shaped, weakly declined apically (Fig. 189); apex of scutellar disc weakly rounded. Mesopleuron smooth and polished; lower margin of metapleuron densely pubescent, anteroventral cavity obscured by dense pubescence extending to lateral margin of propodeum. Segment 1 of gaster obscured from view by propodeal pubescence and base of tergite 2; apex of tergite 2 reticulate, visible parts of tergites 3–5 reticulate (cf. Fig. 187); hypopygium inconspicuous. Wings narrow, rounded apically; radial cell of fore wing completely closed, almost triangular (Fig. 190); veins *Rs* + *M* and *M* not visible either as folds or pigmentation. Legs with femora and tibiae very weakly sculptured. Colour: antenna orange-yellow, apical segments dark; head, thorax and gaster chestnut brown; legs orange-yellow.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Rutshuru, 1285 m, 11.vii.1935 (*de Witte*) (MRAC).

Paratypes. **Zaire**: 2 ♂ (MRAC).

REMARKS. Distinguished from other species in the genus by the moniliform antenna of the female (Fig. 179) and almost triangular radial cell of the fore wing.

### *Sirenese silenus* sp. n.

(Figs 176, 177, 191–194)

DESCRIPTION. ♀ antenna weakly subclavate apically, segments 3–10 subequal in length, apical three segments with pronounced rhinaria, segment 10 with weak rhinaria, forming a weak club (Fig. 177). Head viewed frontally with eyes as far apart measured medially as the height of an eye; face smooth and polished, reticulate on inner margins of eye, with a few scattered hairs; malar grooves percurrent; vertex and occiput reticulate-coriaceous; lateral margins of occipital carina with a line of dense pubescence. Pronotal plate rectangular, lateral fovea indistinct, appearing open (Fig. 191). Mesoscutum reticulate-coriaceous, impressions in place of notauli; lateral bars of scutellum coriaceous-striate; scutellar fovea deep, smooth and polished; scutellar cup long and narrow, dew drop-shaped, apical half oval and declined; scutellar disc squarish apically, surface dull, with trace of sculpture (Fig. 176). Mesopleuron finely reticulate-coriaceous; metapleural anteroventral cavity obscured by dense pubescence on lower margins of mesopleuron and lateral margins of propodeum. Segment 1 of gaster in form of narrow ring, obscured by presence on propodeum and the dense narrow ring of woolly pubescence at base of tergite 2 of gaster; tergite 2 occupying whole of visible area of gaster in lateral view; apex of gaster punctate; hypopygium inconspicuous (Fig. 193). Wing rounded apically; radial cell of fore wing partially open on wing margin; veins *Rs* + *M* and *M* indicated but not pigmented (Fig. 194). Legs with femora and tibiae finely coriaceous; trochanters of normal proportions. Colour: antenna orange-yellow basally, club segments darker; head and dorsal surface of mesoscutum blackish; mesopleuron and gaster orange-brown; legs orange-yellow.

♂ unknown.

#### MATERIAL EXAMINED

Holotype ♀, **Kenya**: Nairobi, Karen, 1982 (*Dewhurst*) (BMNH).

Paratype. **Zaire**: 1 ♀ (MRAC).

REMARKS. The antennal and scutellar cup characters separate *silenus* from all other species in the genus.

### *Sirenese sinis* sp. n.

(Figs 171–173, 195)

DESCRIPTION. ♀ antenna subclavate, segment 3 longer than 4, 4–6 subequal in length, segments 7–13 with rhinaria, forming a weak 7-segmented club (Fig. 171); ♂ antenna flagelliform, segments 3–5 subequal in length, segment 3 weakly curved, 4 weakly swollen medially. Head viewed frontally with eyes as far apart measured medially as the height of an eye; frons and lateral areas finely reticulate-coriaceous; mandibular area with a few scattered hairs; occiput and vertex with dense fine reticulate-coriaceous sculpture; lateral margins of occipital carina pubescent. Pronotal plate viewed frontodorsally rectangular, surface coriaceous, lateral foveae very small and open (this is difficult to appreciate). Mesoscutum polished medially, laterally margins densely and finely reticulate-coriaceous (Fig. 173); lateral bars of scutellum striate; scutellar fovea smooth and polished; scutellar cup long and narrow, apical half weakly declined; scutellar disc weakly strigose, apex squarish. Mesopleuron finely coriaceous; anteroventral cavity bare; lower margins of mesopleuron (mesosternum) densely pubescent. Segment 1 of gaster in form of a narrow ring, longer than wide, completely obscured by propodeal pubescence and a dense ring of pubescence at base of tergite 2; apical third of segment 2 and visible parts of 3–5 finely reticulate-coriaceous (Fig. 195); hypopygium broad apically (Fig. 195). Wings broad apically; radial cell of fore wing completely closed;



*Rs* + *M* and *M* indicated, not pigmented. Legs with trochanters clearly longer than broad. Colour: antenna dark brown-black; head and thorax blackish brown; gaster chestnut-red; legs orange.

#### MATERIAL EXAMINED

Holotype ♀, **Cameroun**: Nkoemvon, viii.–ix.1980 (*Jackson*) (BMNH).

Paratypes. **Cameroun**: 4 ♀, 1 ♂ (BMNH). **Zaire**: 8 ♀ (MRAC).

REMARKS. Apart from antennal differences the female is distinguished from other species on gastral characters. The males of *spio* and *sinis* cannot be separated and their identification has been by association with females.

### *Sirenes spio* sp. n.

(Figs 174, 175, 185, 196)

DESCRIPTION. ♀ antenna with the apical 8 or 9 segments with rhinaria, segment 3 shorter than 4, filiform, 4–9 subequal in length, 10–13 with more strongly pronounced rhinaria (Fig. 174). ♂ antenna flagelliform. Head viewed frontally finely coriaceous; eyes further apart measured medially than the height of an eye; malar grooves percurrent, obscured by striae on either side; mandibular area with scattered hairs; vertex and occiput reticulate-coriaceous; lateral margins of occipital carina with a line of dense pubescence. Pronotal plate rectangular, broad based, lateral foveae open (Fig. 196). Mesoscutum finely and densely reticulate-coriaceous, lateral lines present apically; lateral bars of scutellum striate; scutellar foveae smooth and polished, deep; scutellar cup elliptical, apical third with a declined fovea; scutellar disc reticulate-coriaceous, dull, apex squarish (Fig. 175). Mesopleuron finely reticulate-coriaceous-striate; lower margins of mesopleuron (mesosternum) densely pubescent; anteroventral cavity obscured by dense pubescence extending from lateral margins of propodeum. Segment 1 of gaster in form of a crenulate ring as wide as long (longer than wide in male), obscured by thin ring of dense woolly pubescence at base of tergite 2; tergites 2–4 of gaster visible in lateral view; apical quarter of tergite 2 reticulate, segments 3 and 4 punctate (cf. Fig. 187); hypopygium short, broad apically. Wings broad; radial cell of fore wing completely closed; veins *Rs* + *M* and *M* weakly pigmented. Legs with coxae, femora and tibiae coriaceous. Colour: antenna dark brownish yellow; head and thorax dark chestnut-brown; gaster orange-brown; legs orange-brown.

#### MATERIAL EXAMINED

Holotype ♀, **Zaire**: Kivu, Rutshuru, 1285 m, 12.vii.1935 (*de Witte*) (MRAC).

Paratypes. **Zaire**: 1 ♀, 3 ♂ (MRAC).

REMARKS. The female is separated on gastral characters from *sinis*, although the males cannot be distinguished other than by association with females.

### *Sirenes steropes* sp. n.

(Figs 178, 199)

DESCRIPTION. ♀ antenna weakly subclavate, segment 3 shorter than 4+5, 4 longer than 5, 5–9 subequal in length, 10–13 with rhinaria forming a weak 4-segmented club (Fig. 178); ♂ antenna flagelliform, segment 3 weakly curved (cf. Fig. 183). Head viewed frontally with eyes further apart than the height of an eye measured medially; face smooth and polished; malar grooves obscured by striations on either side; mandibular area with few scattered hairs; occiput and vertex strongly coriaceous-strigose (Fig. 199). Pronotal plate viewed frontodorsally with lateral foveae open (cf. Fig. 191). Mesoscutum polished, notauli absent, finely coriaceous on lateral margins; lateral bars of scutellum striated; scutellar fovea large, smooth and polished; scutellar cup long and narrow with apical fovea weakly declined (cf. Fig. 189); scutellar disc striate, squarish apically. Mesopleuron smooth and polished; lower margins of mesopleuron densely pubescent; anteroventral cavity obscured by pubescence. Segment 1 of gaster completely obscured by pubescence of propodeum and hairy ring at base of tergite 2 of gaster; tergites 2–4 of gaster visible in lateral view; apex of tergite 2 and visible parts of 3 and 4 punctate (cf. Fig. 187); hypopygium not pronounced. Wings broad apically, with short widely spaced hairs on surface, apical margins with fringe of hairs long; radial cell of fore wing closed; veins *Rs* + *M* and *M* indicated, not pigmented (cf. Fig. 188). Legs with trochanters longer than broad, distinctive. Colour: antenna yellowish basally, apical segments darker; head and thorax dark brown; gaster orange-yellow; legs orange-brown.

#### MATERIAL EXAMINED

Holotype ♀, **Kenya**: 15 mls NE. Kisumu nr Lake Victoria, xi.1979 (*Croft*) (BMNH).

Paratypes. **Kenya**: 1 ♀ (BMNH). **South Africa**: 1 ♀ (BMNH). **Zaire**: 38 ♀, 8 ♂ (BMNH and MRAC).

REMARKS. Separated from other species by the antennal characters.



*Sirenes syrinx* sp. n.

(Figs 180, 183, 197)

DESCRIPTION. ♀ antenna filiform, weakly subclavate, segment 3 shorter than 4+5, 4–7 subequal in length, 8–13 with rhinaria forming a weak 6-segmented club (Fig. 180); ♂ antenna flagelliform, segment 3 weakly curved, longer than 4 (Fig. 183). Head viewed frontally with eyes slightly further apart than the height of an eye measured medially; inner orbits of face finely coriaceous; malar grooves obscured by striations on either side; mandibular area of face with scattered hairs; occiput strongly coriaceous, lateral margins of occipital area pubescent. Pronotal plate viewed frontodorsally with lateral fovea open (cf. Fig. 191). Mesoscutum polished, finely coriaceous on lateral margins, notauli absent; lateral bars of scutellum striate; scutellar fovea large, smooth and polished; scutellar cup long and narrow with apical fovea weakly declined; scutellar disc squarish apically, surface striated and partially coriaceous (cf. Fig. 175). Mesopleuron finely and densely coriaceous; lower margins of mesopleuron densely pubescent, anteroventral cavity without pubescence. Segment 1 of gaster petiolate, narrow, a little longer than wide, partially obscured by a ring of dense pubescence at base of tergite 2; apical third and visible parts of 3–5 reticulate-coriaceous; hypopygium not pronounced (cf. Fig. 187). Wings broad apically, rounded; veins *Rs* + *M* and *M* weakly indicated; radial cell of fore wing completely closed (Fig. 197). Legs with trochanters longer than broad, distinctive. Colour: antenna dark brownish yellow; head, thorax and gaster chestnut red; legs orange-yellow.

## MATERIAL EXAMINED

Holotype ♀, **Zaire**: Rutshuru, riv. Kanzarue, 1200 m, 16.vii.1935 (*de Witte*) (MRAC).

Paratypes. **Zaire**: 23 ♀, 6 ♂ (MRAC). **South Africa**: 1 ♀ [this specimen is particularly pale] (BMNH).

REMARKS. In some specimens the colour is very much paler and the sculpture of the mesoscutum is very weak. Separated from other species by the antennal and mesopleural characters.

*Sirenes syrtes* sp. n.

(Figs 181, 182, 184)

DESCRIPTION. ♀ antenna subclavate, segment 3 weakly curved and subequal in length to 4, 4–8 equal in length, 9–13 forming a weak club (Fig. 181); ♂ antenna with segment 3 strongly curved, rhinaria pronounced (Fig. 184). Head viewed frontally with eyes further apart than the height of an eye measured medially; face reticulate-coriaceous; malar grooves percurrent; occiput and vertex with reticulate-coriaceous sculpture; lateral margins of occipital carina with a line of dense pubescence. Pronotal plate with lateral fovea appearing closed (cf. Fig. 191). Mesoscutum reticulate-coriaceous; lateral bars of scutellum striate; scutellar fovea smooth and polished, deep; scutellar cup long and narrow, apical half of cup and disc weakly declined; surface of scutellar disc weakly striated, apex squarish (cf. Fig. 189). Mesopleuron with fine coriaceous sculpture; anteroventral cavity obscured by dense pubescence. Segment 1 of gaster in form of a ring as wide as long, partially obscured by ring of pubescence at base of tergite 2; apex of tergite 2 with reticulate-coriaceous sculpture extending to visible parts of 3–5; hypopygium not pronounced (cf. Fig. 193). Wings rounded apically, broad; radial cell of fore wing completely closed; veins *Rs* + *M* and *M* weakly pigmented (cf. Fig. 197). Legs with hind femur and tibia finely reticulate-coriaceous; trochanters not pronounced. Colour: antenna brownish basally, apical segments darker; head and thorax blackish; gaster chestnut red; legs dull orange-yellow.

## MATERIAL EXAMINED

Holotype ♀, **Zaire**: Nyasheke (volc. Nyamuragira), 182 m, 14–26.vi.1935 (*de Witte*) (MRAC).

Paratypes. **Zaire**: 1 ♀, 1 ♂ (MRAC).

REMARKS. The mesopleural characters separate *syrtes* from *flocus*.

## Acknowledgements

I thank my colleagues in the Hymenoptera Section for advice and criticism during the preparation of this paper. My thanks are extended to the Keeper of Entomology, Dr L. A. Mound, for allowing me to complete this paper after my retirement.

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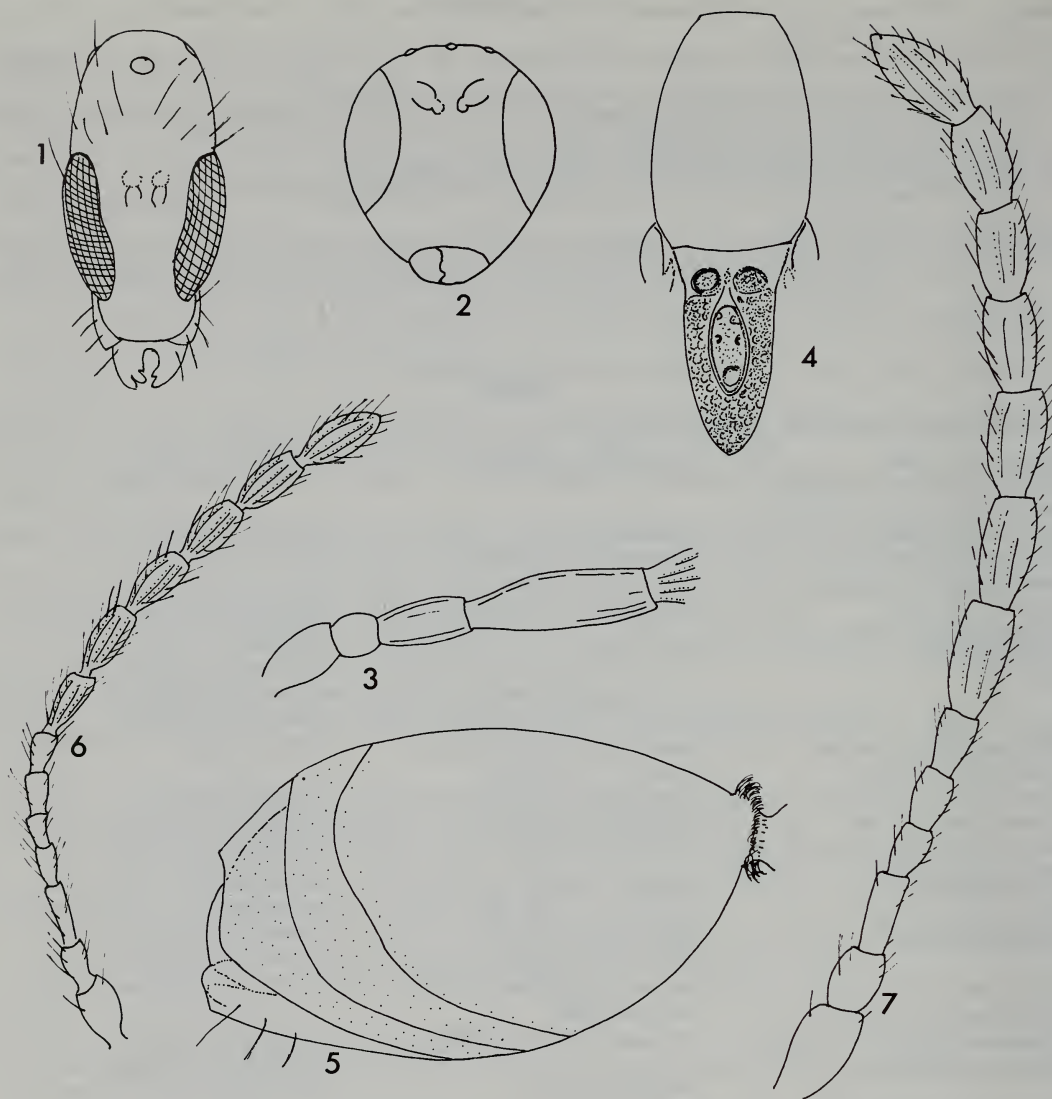
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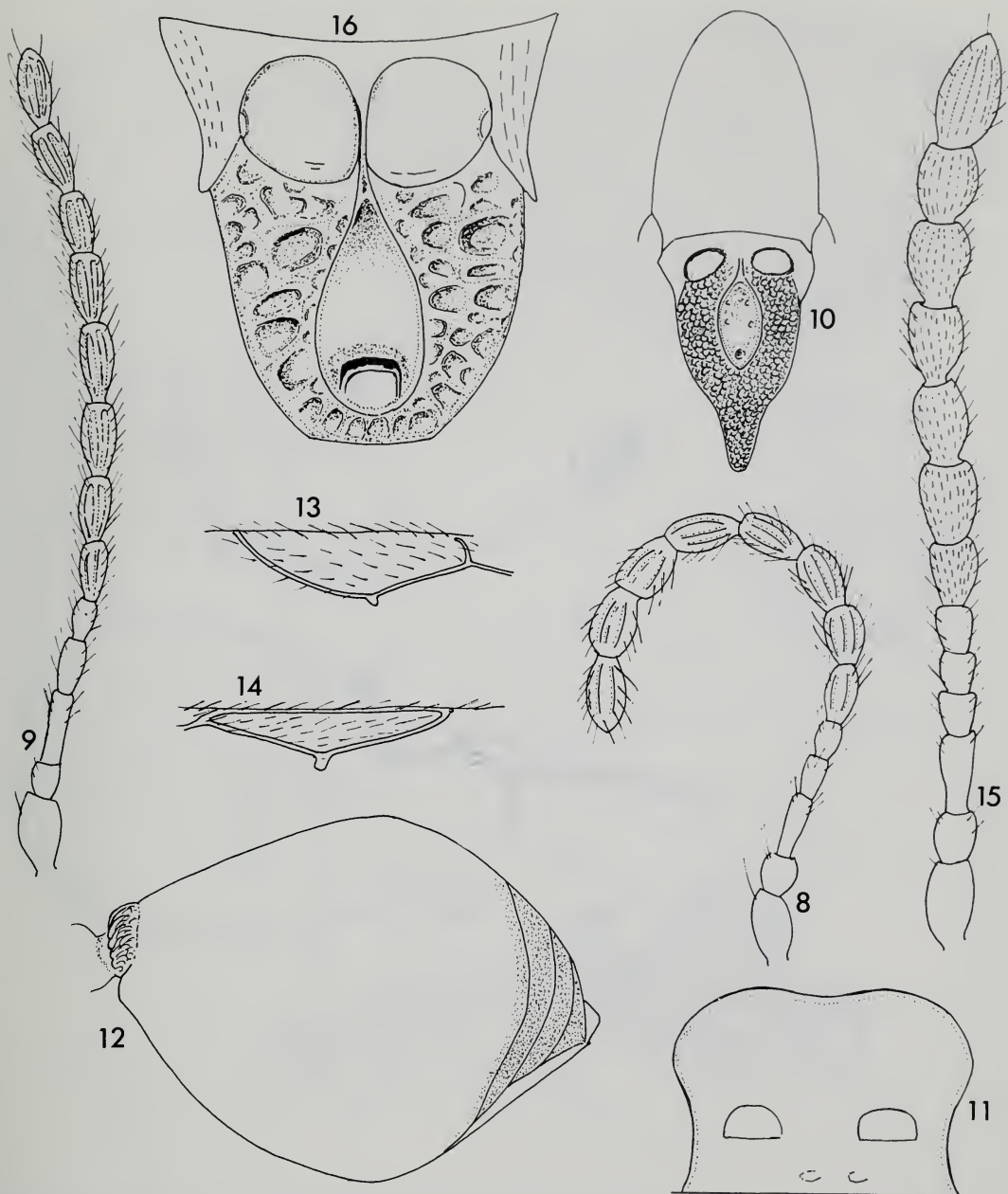
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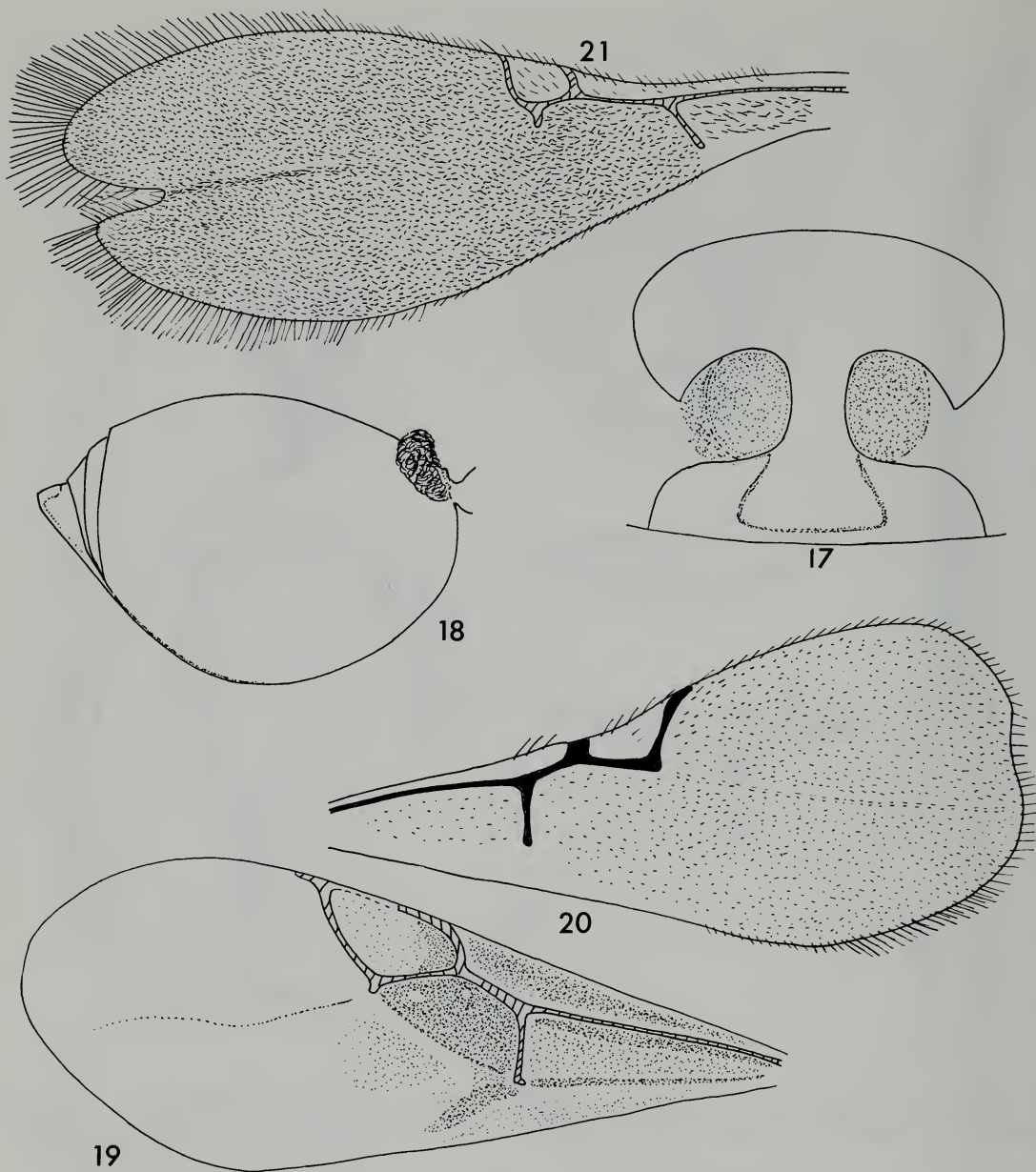




**Figs 1-7** 1, 2, frontal view of head of (1) *Angustacorpa* sp.; (2) *Trichoplasta* sp. 3, basal segments of male antenna of *Angustacorpa* sp. 4, mesonotum of *Angustacorpa apsus*. 5, gaster of *A. apsus*. 6, 7, female antenna of (6) *A. apsus*; (7) *A. triton*.

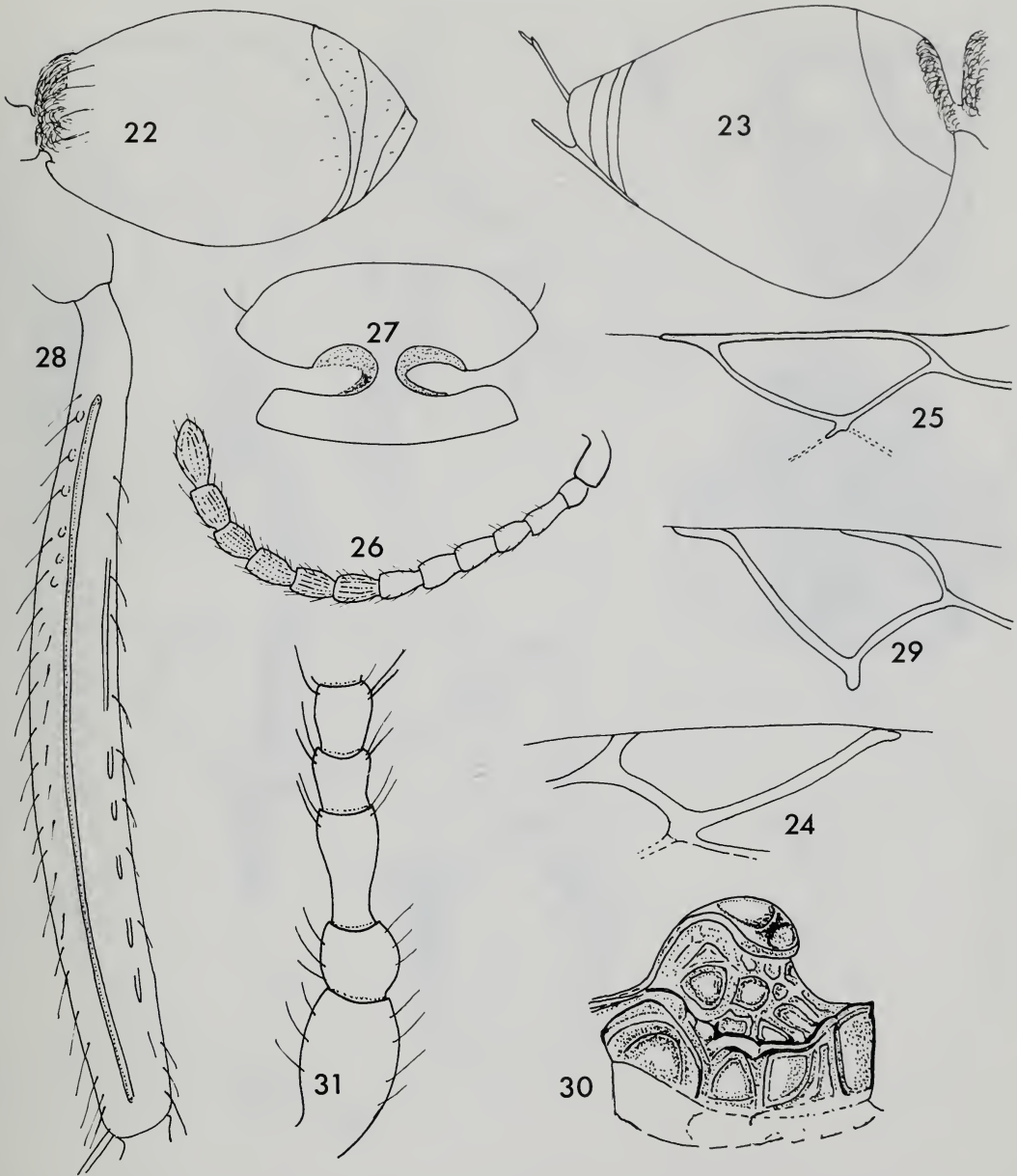


**Figs 8–16** 8, 9, female antenna of (8) *Angustacorpa prodicus*; (9) *A. persa*. 10, mesonotum of *A. persa*. 11, pronotal plate of *A. persa*. 12, gaster of *A. triton*. 13, 14, radial cell of (13) *A. triton*; (14) *A. apsus*. 15, 16, *Bothrochacis erythropoda* (15) female antenna; (16) scutellum.

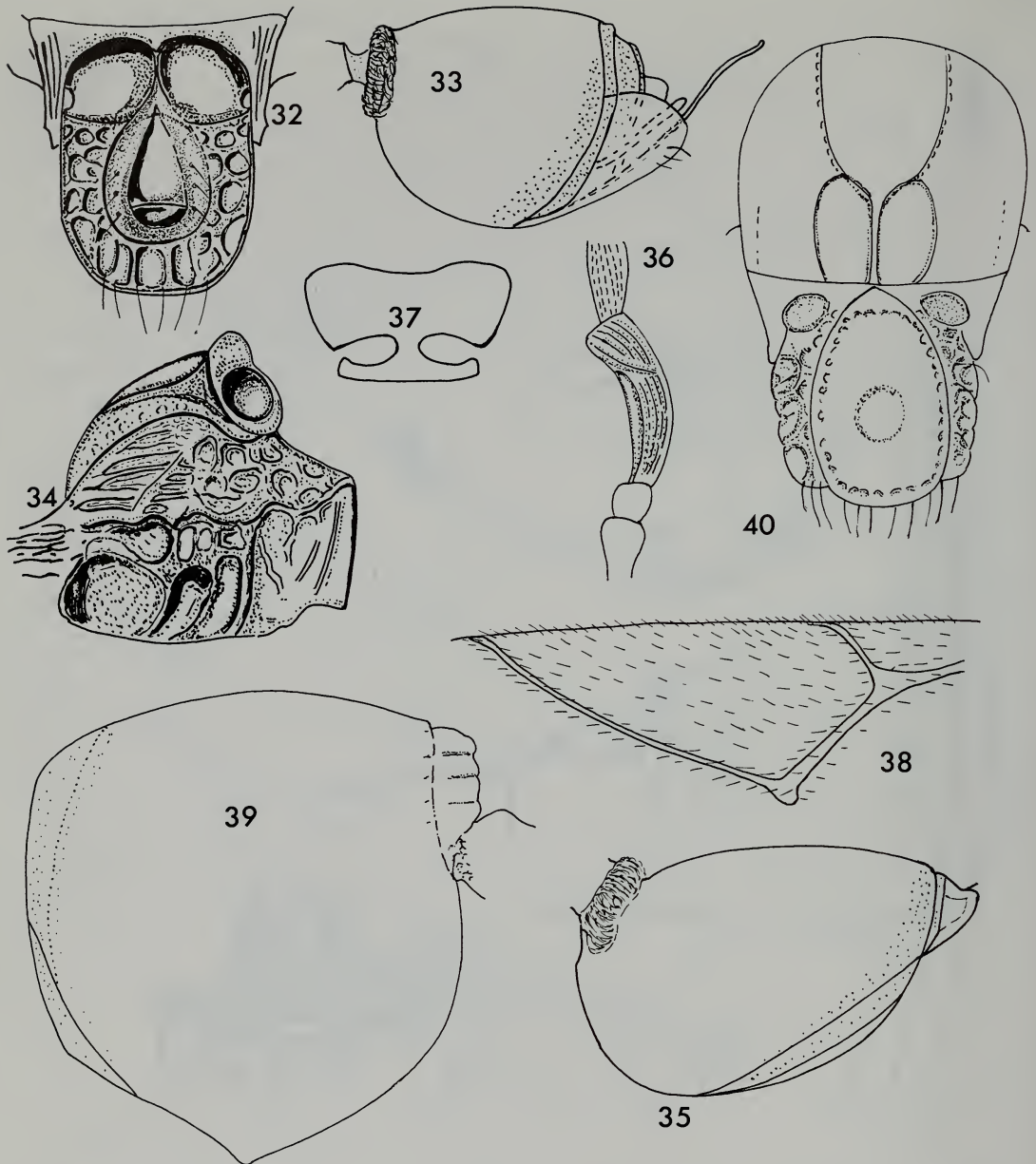


**Figs 17–21** 17, 18, *Bothrochacis erythropoda* (17) pronotal plate; (18) female gaster. 19–21, female fore wing of (19) *B. erythropoda*; (20) *Kleidotoma* sp.; (21) *Emargo* sp.

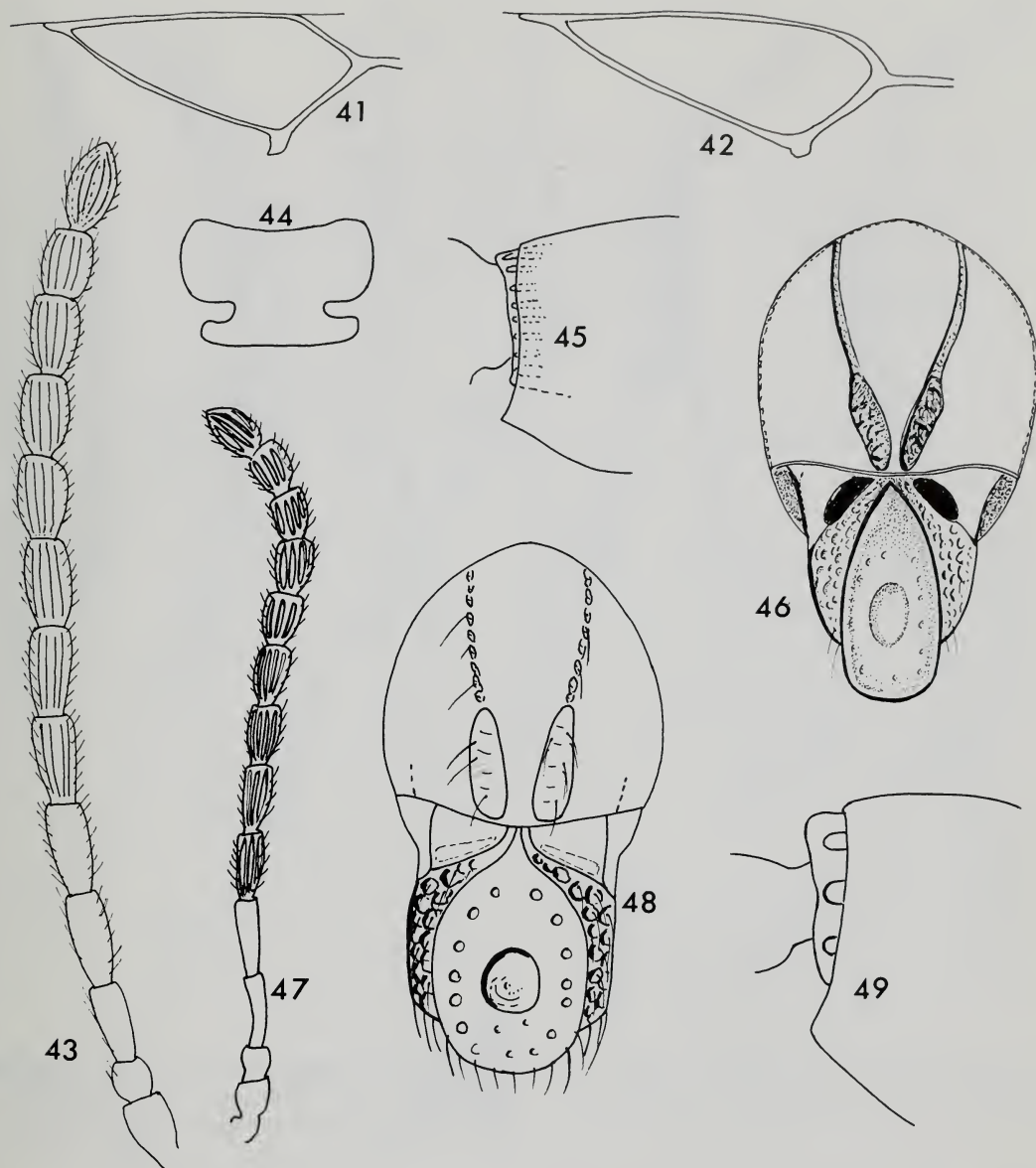




**Figs 22–31** 22, 23, female gaster of (22) *Kleidotoma psiloides*; (23) *Emargo micipsa*. 24, 25, radial cell of (24) *Glauraspidia* sp.; (25) *Sirenes* sp. 26–30, *Bothrochacis serratepilosa* (26) female antenna; (27) pronotal plate; (28) hind tibia; (29) radial cell; (30) scutellar cup. 31, basal segments of female antenna of *B. rufiventris*.

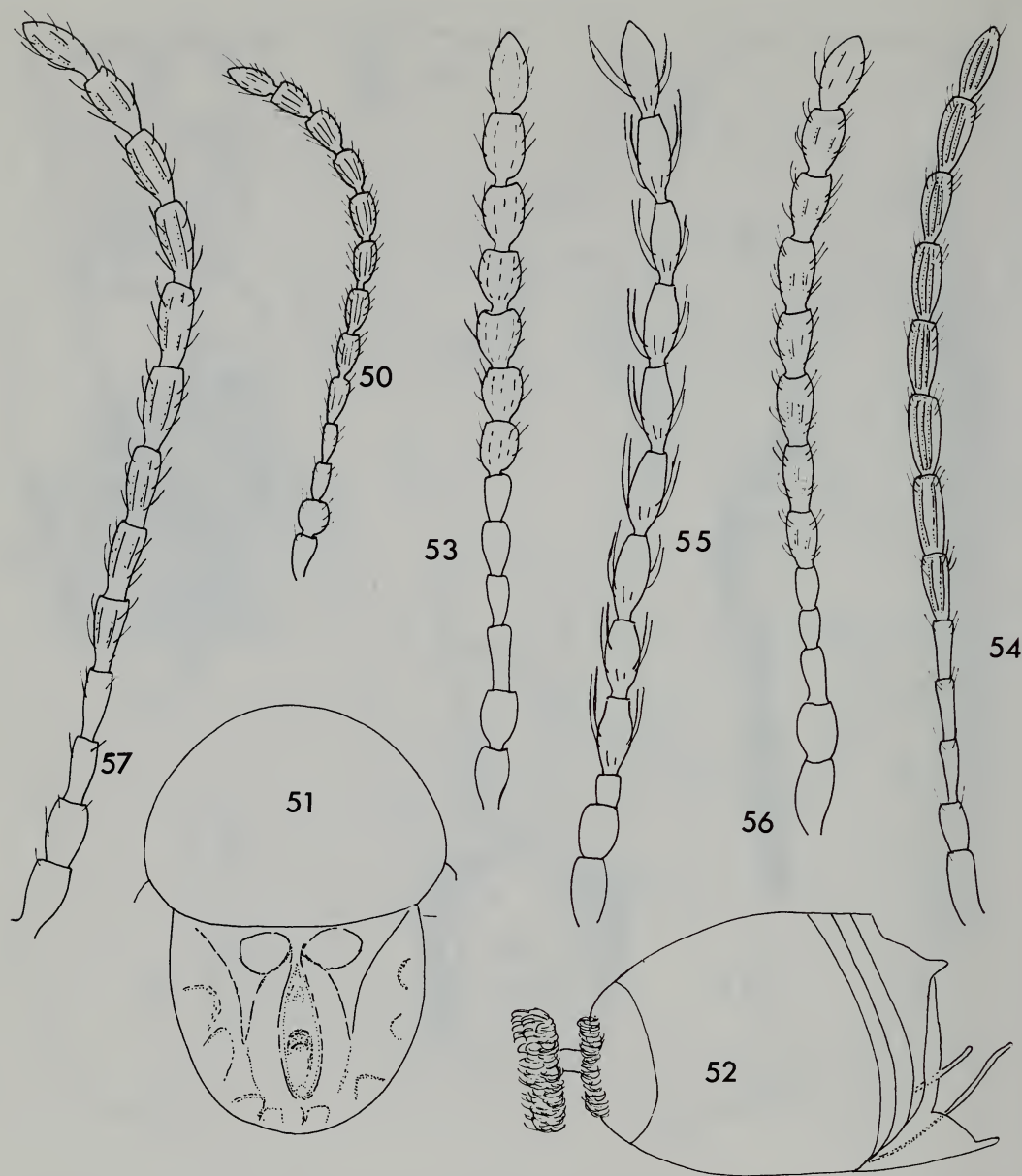


**Figs 32–40** 32, 33, *Bothrochasis serratepilosa* (32) scutellum; (33) female gaster. 34, 35, *B. rufiventris* (34) lateral view of scutellum; (35) gaster. 36, 37, *Diglyphosema latesulcatum* (36) basal segment of male antenna; (37) pronotal plate. 38, radial cell of *D. eupatorii*. 39, 40, *D. utica* (39) gaster; (40) mesonotum.

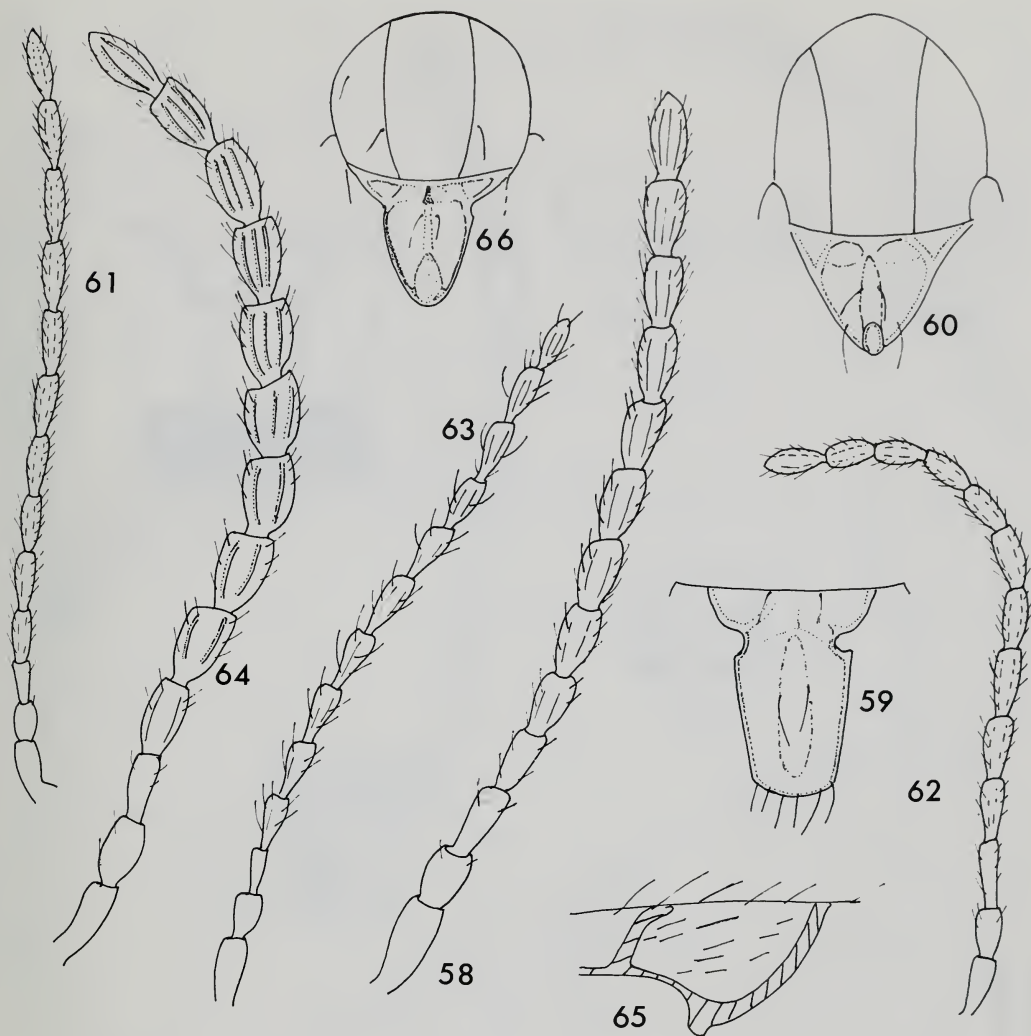


**Figs 41–49** 41, 42, radial cell of (41) *Diglyphosema utica*; (42) *D. latesulcatum*. 43, antenna of *D. utica*. 44–46, *D. eupatorii* (44) pronotal plate; (45) basal segment of gaster; (46) mesonotum. 47–49, *D. latesulcatum* (47) female antenna; (48) mesonotum; (49) basal segments of gaster.

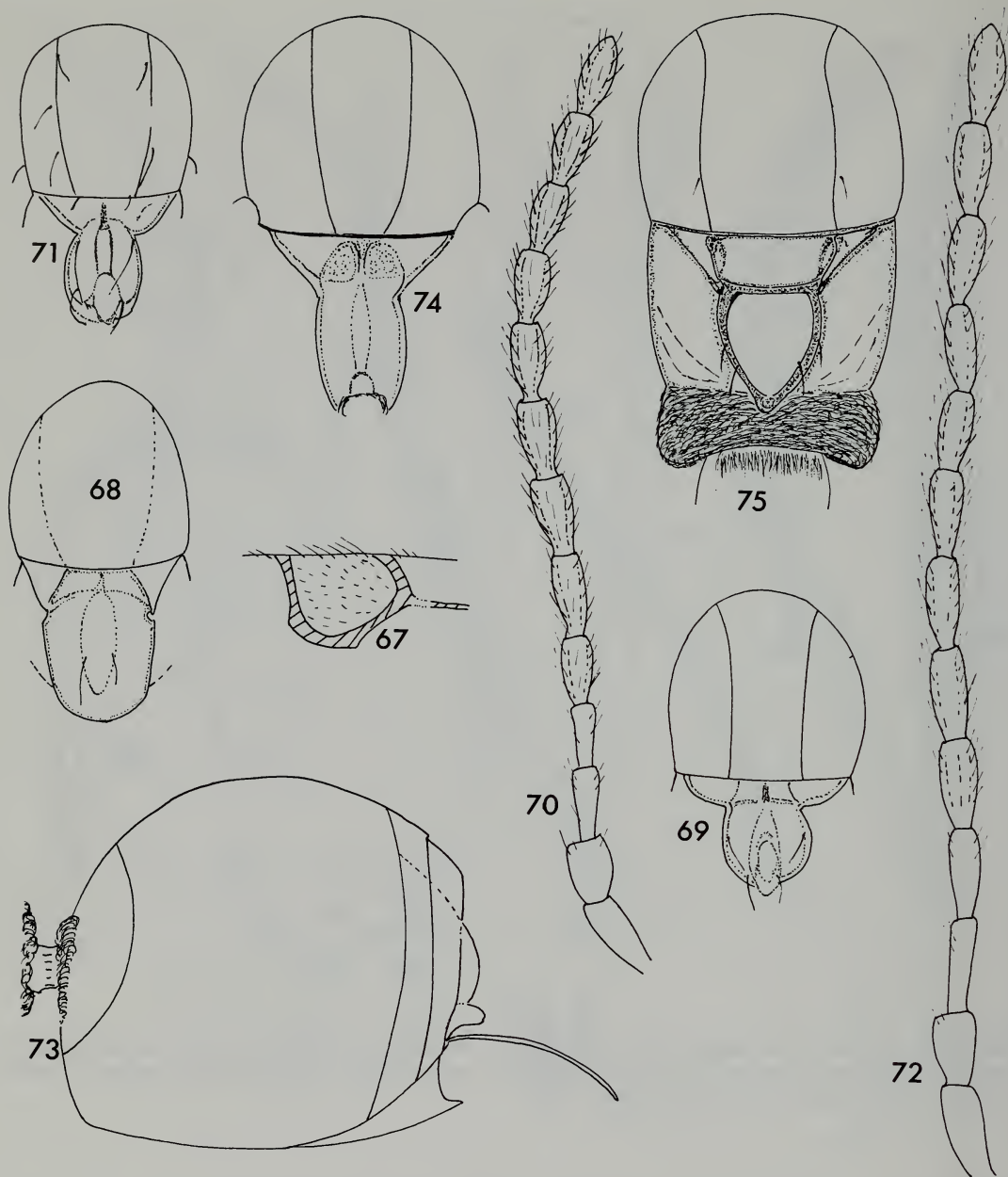




Figs 50–57 50, female antenna of *Emargo* sp. 51, 52, *Emargo ascia* (51) mesonotum; (52) female gaster. 53–57, female antenna of (53) *E. laverna*; (54) *E. pexus*; (55) *E. capito*; (56) *E. cantus*; (57) *E. ascia*.

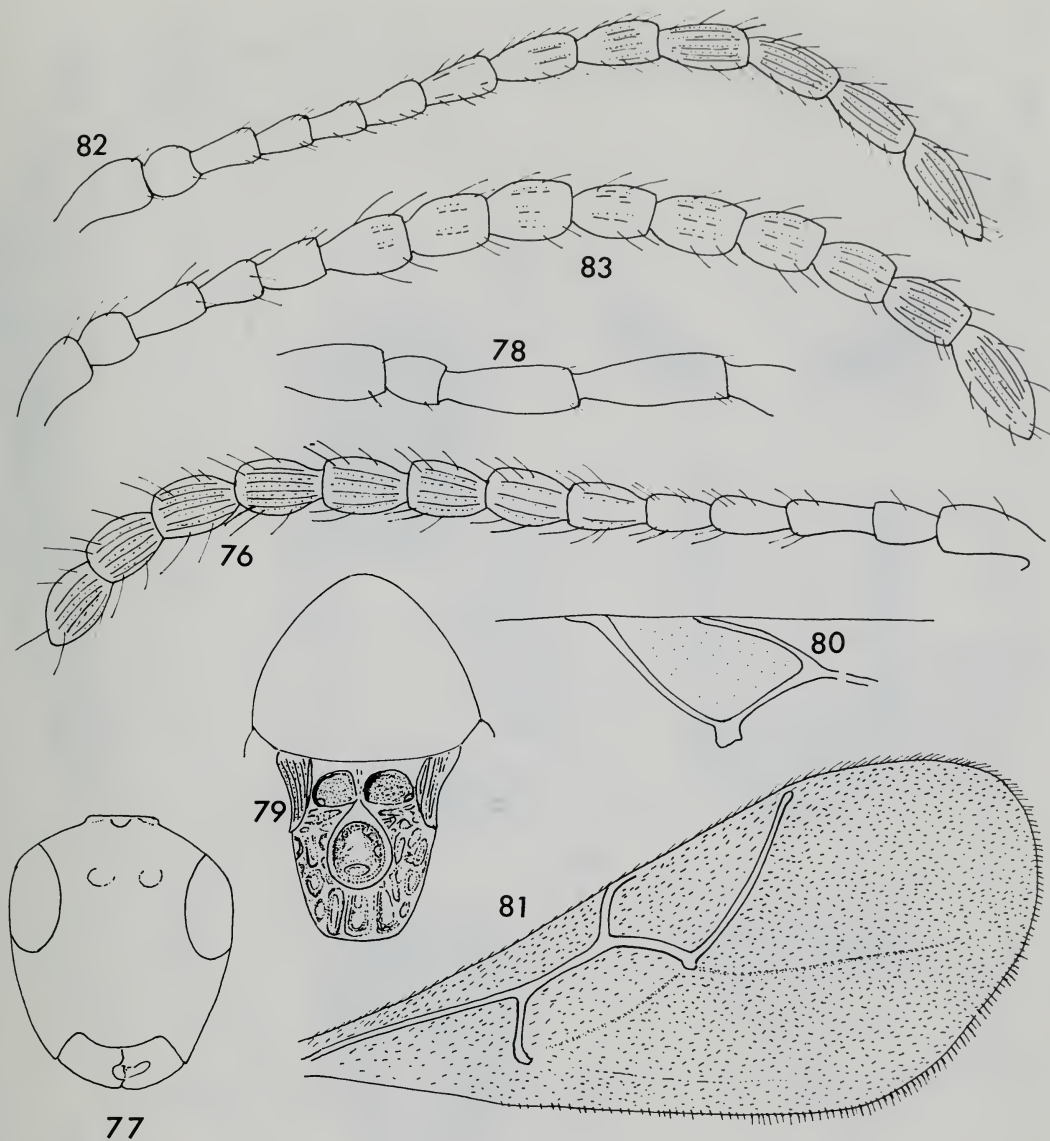


**Figs 58–66** 58, female antenna of *Emargo matius*. 59, scutellum of *E. palloris*. 60, mesonotum of *E. numa*. 61–64, female antenna of (61) *E. themis*; (62) *E. vacuna*; (63) *E. micipsa*; (64) *E. peleus*. 65, radial cell of *E. ascia*. 66, mesonotum of *E. cantus*.

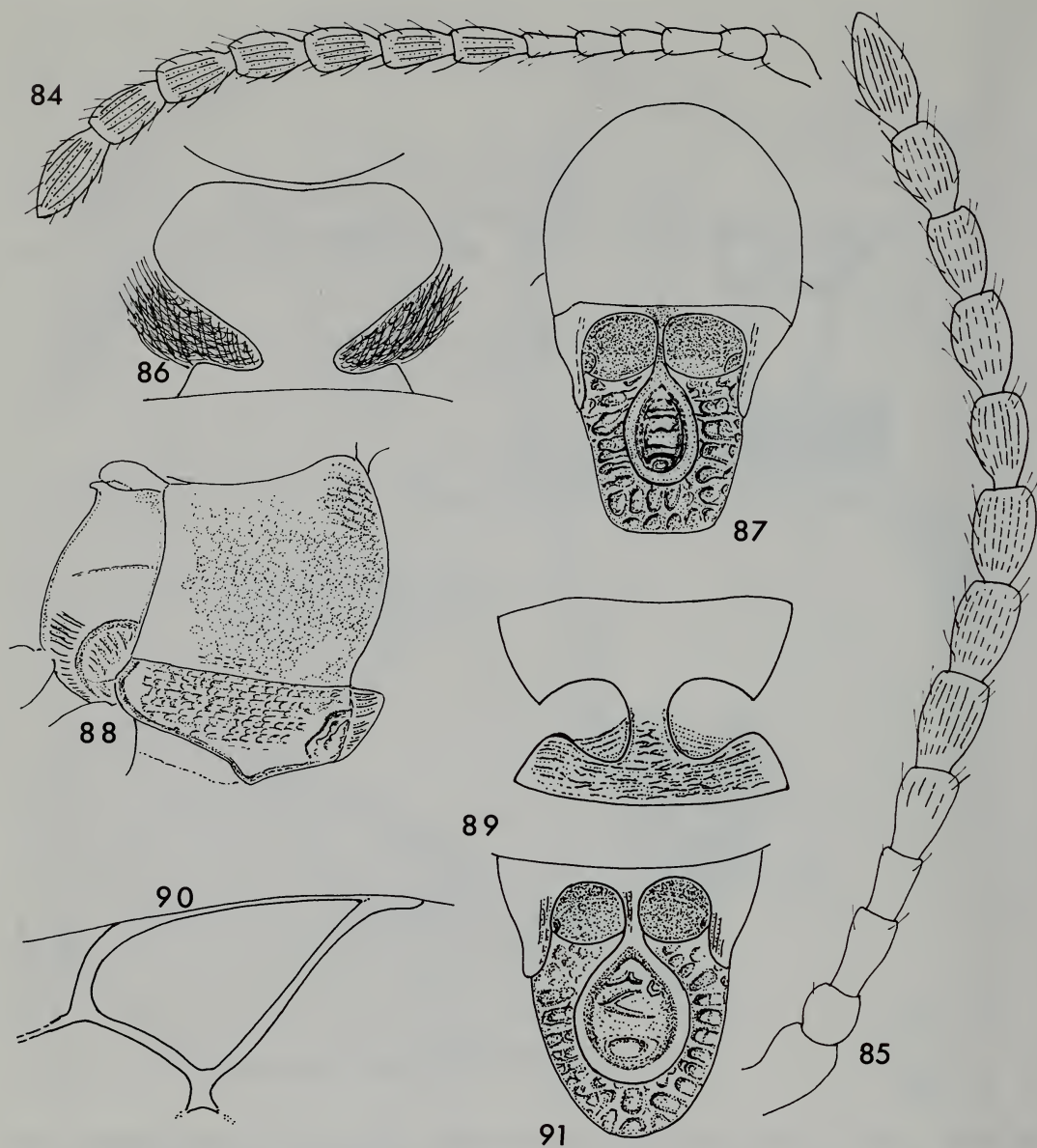


Figs 67–75 67, radial cell of *Emargo cantus*. 68, 69, mesonotum of (68) *E. capito*; (69) *E. matius*. 70, 71, *E. numa* (70) female antenna; (71) mesonotum. 72, female antenna of *E. palloris*. 73, gaster of *E. peleus*. 74, 75, mesonotum of (74) *E. pexus*; (75) *E. eciton*.

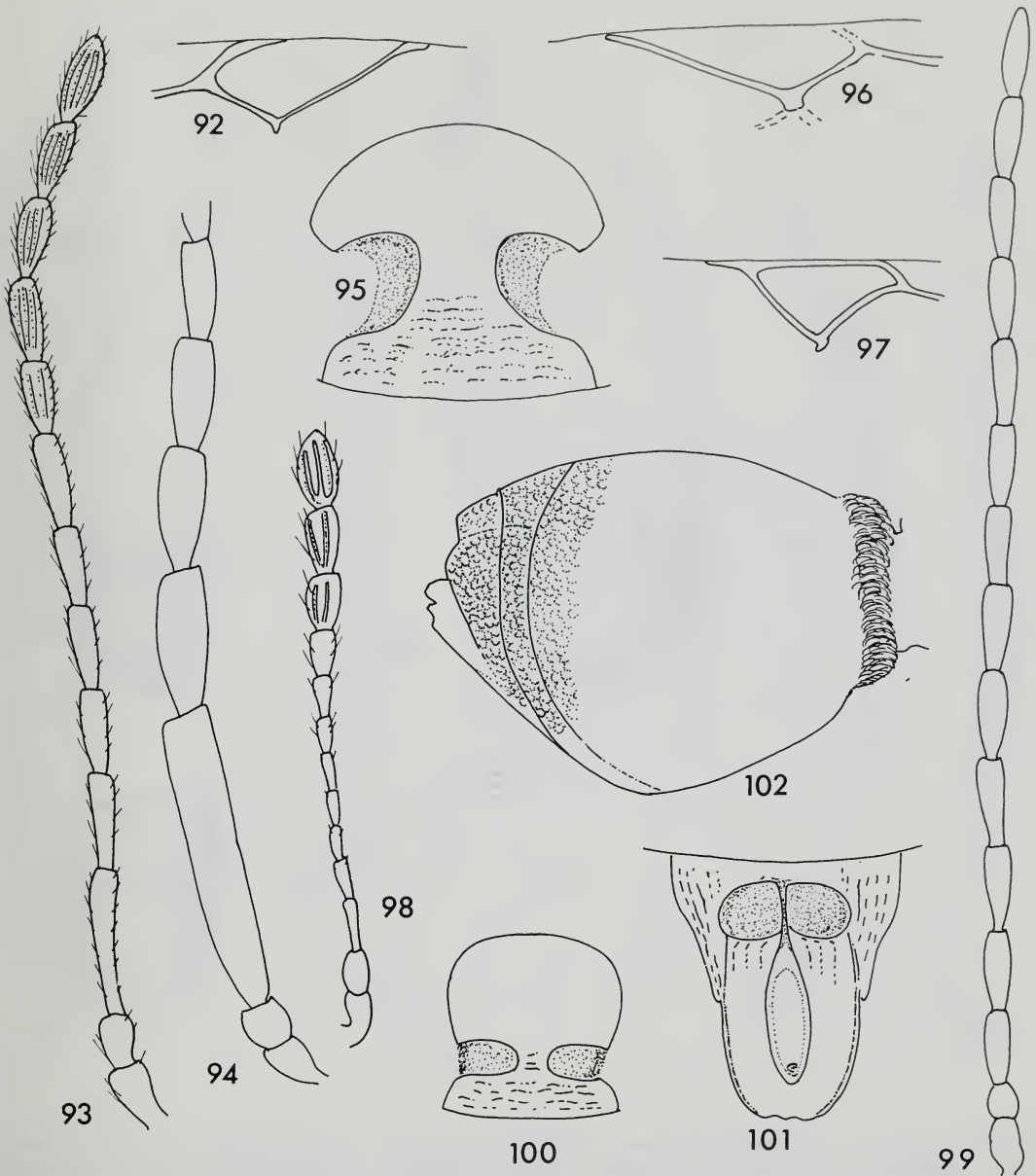




**Figs 76–83** 76–80, *Eucoila crassinerva* (76) female antenna; (77) head; (78) basal segments of male antenna; (79) mesonotum; (80) radial cell. 81, fore wing of *Trybliographa rapae*. 82, 83, female antenna of (82) *Eucoila marina*; (83) *E. erinna*.

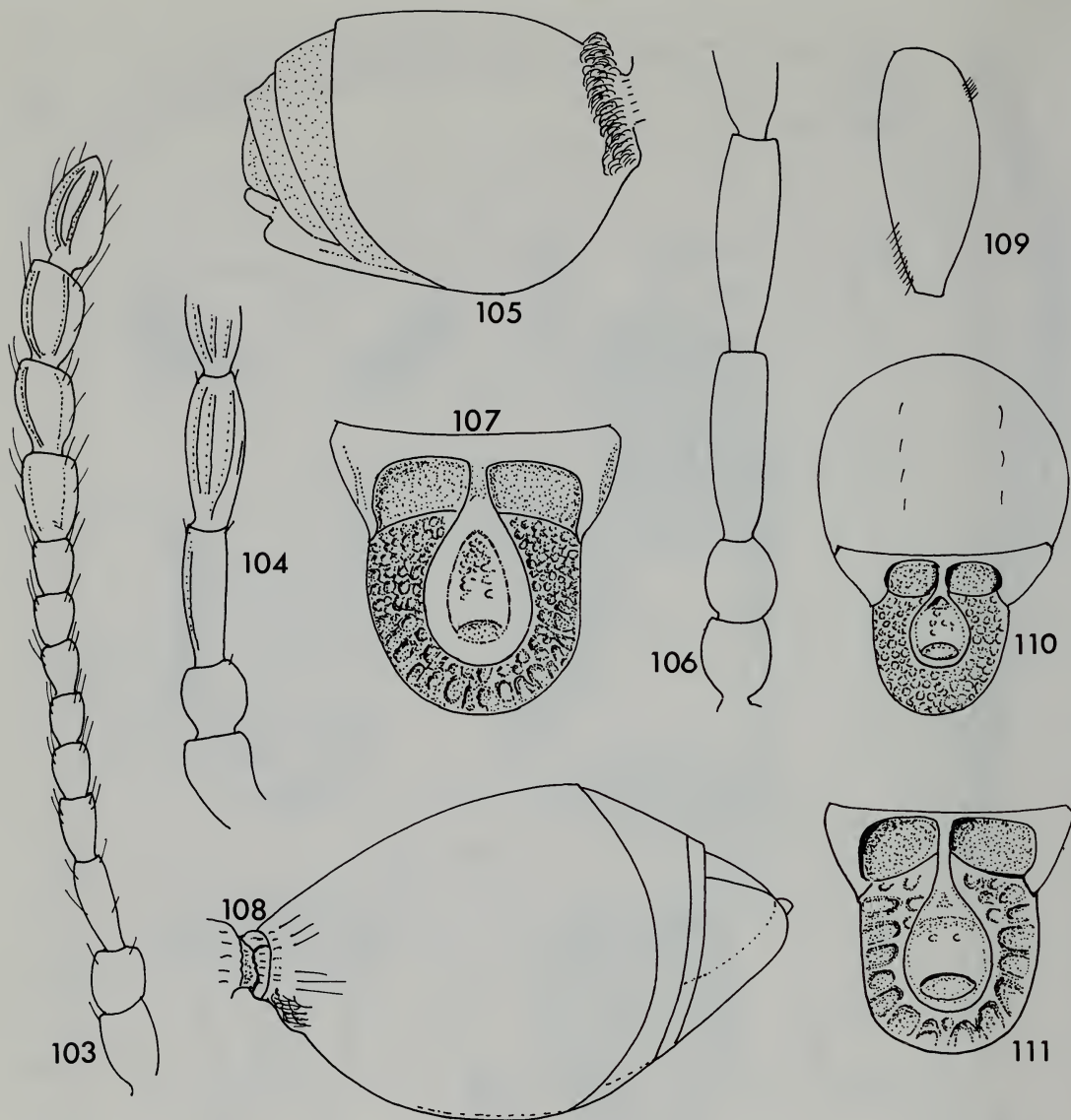


**Figs 84–91** 84, 85, female antenna of (84) *Eucoila bantia*; (85) *E. erinna*. 86, 87, *E. bantia* (86) pronotal plate; (87) mesonotum. 88–90, *E. marina* (88) mesopleuron; (89) pronotal plate; (90) radial cell. 91, scutellum of *E. erinna*.

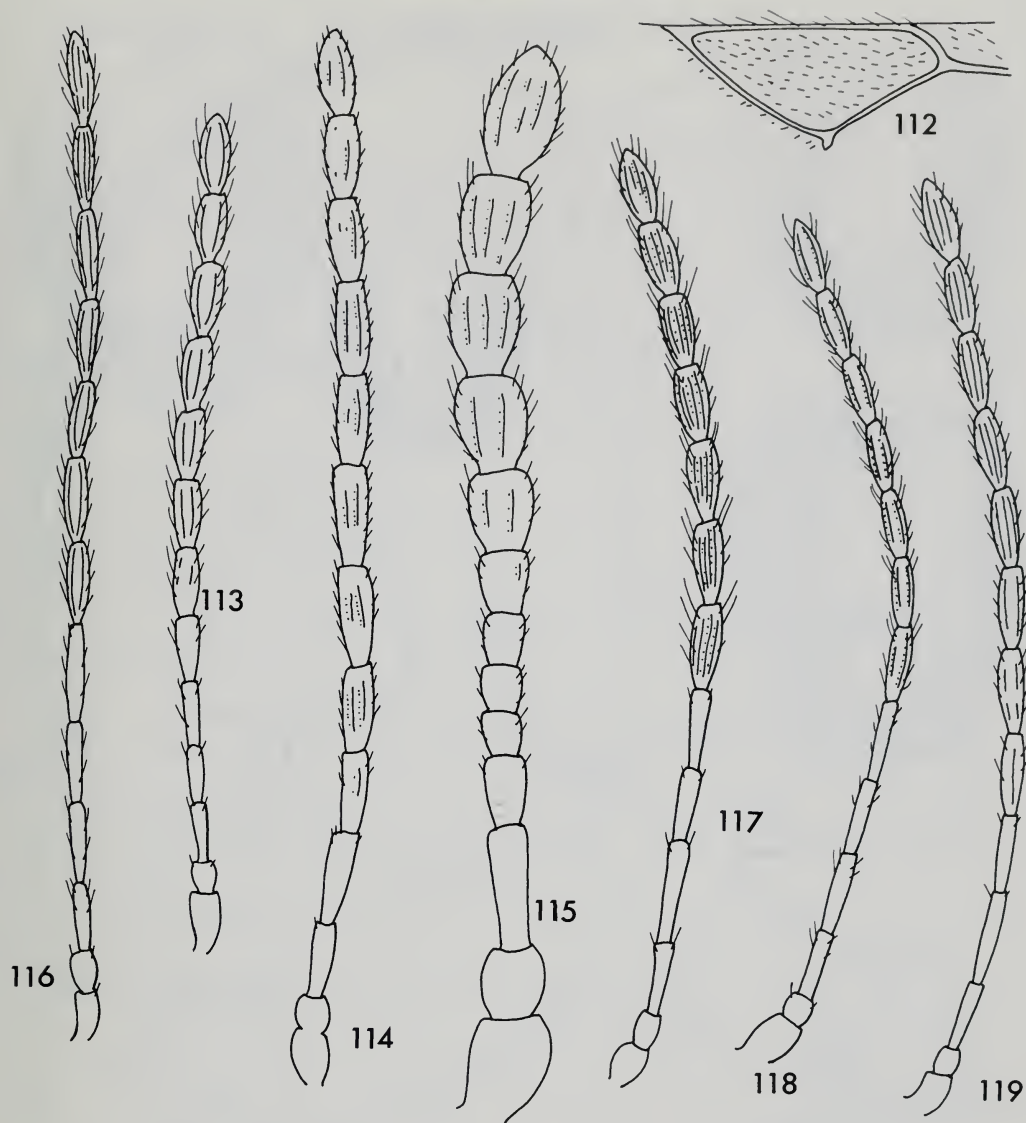


**Figs 92–102** 92, radial cell of *Eucoila erinna*. 93–96, *Glauraspidia microptera* (93) female antenna; (94) male antenna; (95) pronotal plate; (96) radial cell. 97, radial cell of *G. scyphus*. 98–102, *G. casca* (98) female antenna; (99) male antenna; (100) pronotal plate; (101) scutellum; (102) gaster.

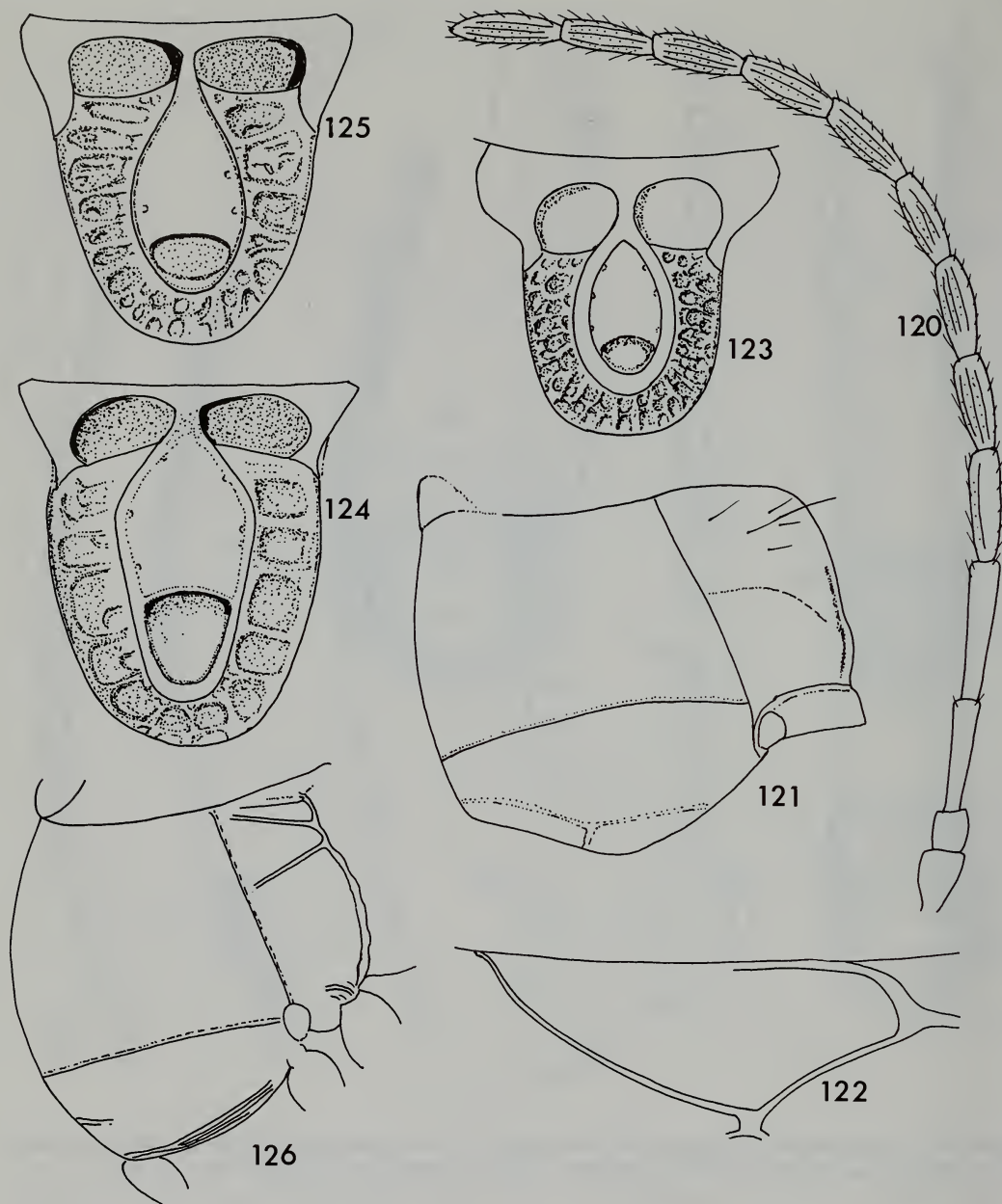




**Figs 103–11** 103–105, *Glauraspidia scyphus* (103) female antenna; (104) basal segments of male antenna; (105) female gaster. 106–109, *Leptopilina longipes* (106) basal segments of male antenna; (107) mesonotum; (108) gaster; (109) hind coxae. 110, 111, mesonotum of (110) *L. clavipes*; (111) *L. fimbriata*.

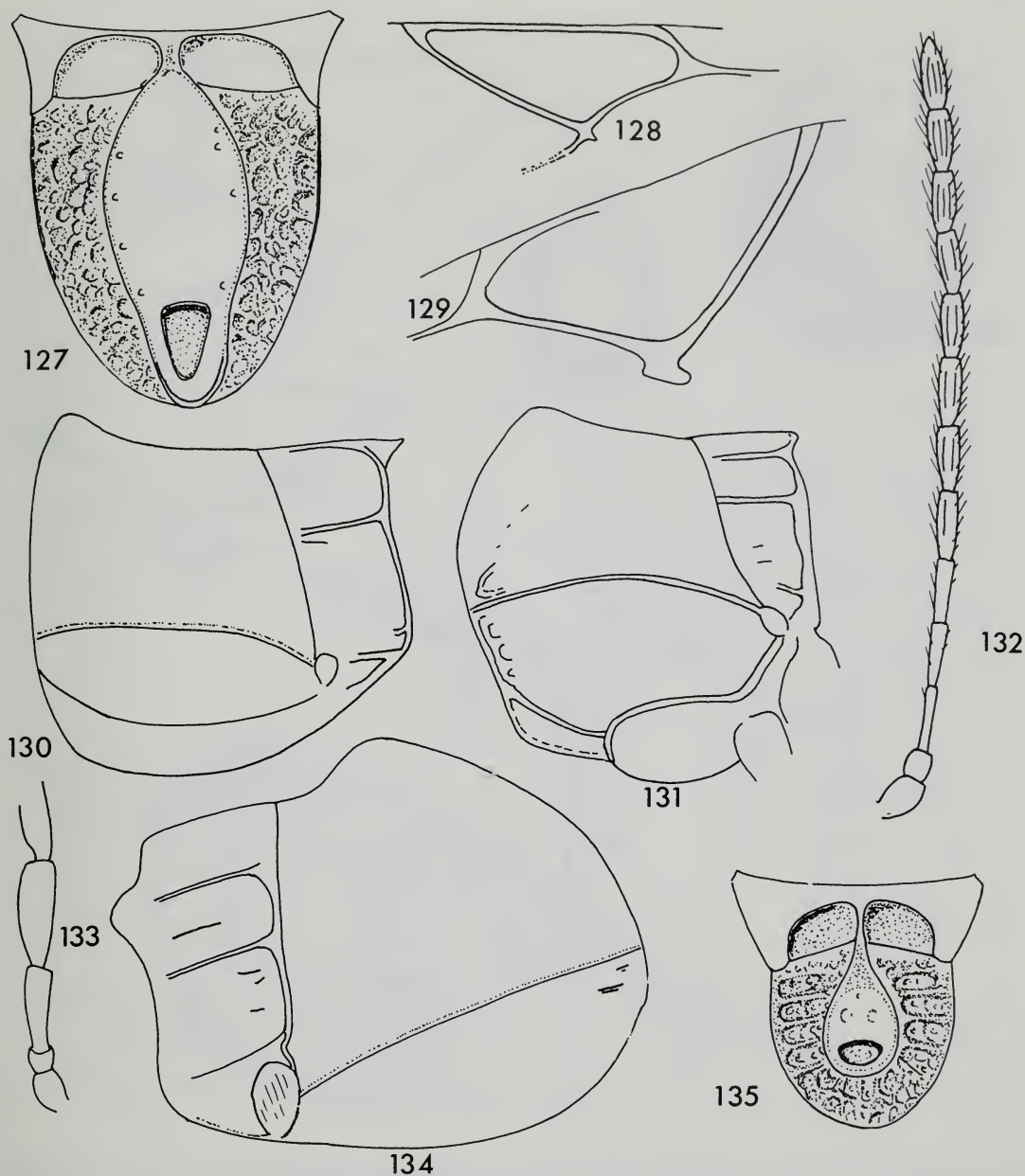


**Figs 112–119** 112, radial cell of *Leptopilina thetus*. 113–119, female antenna of (113) *L. longipes*; (114) *L. misensus*; (115) *L. boulandi*; (116) *L. fimbriata*; (117) *L. thetus*; (118) *L. itys*; (119) *L. apella*.

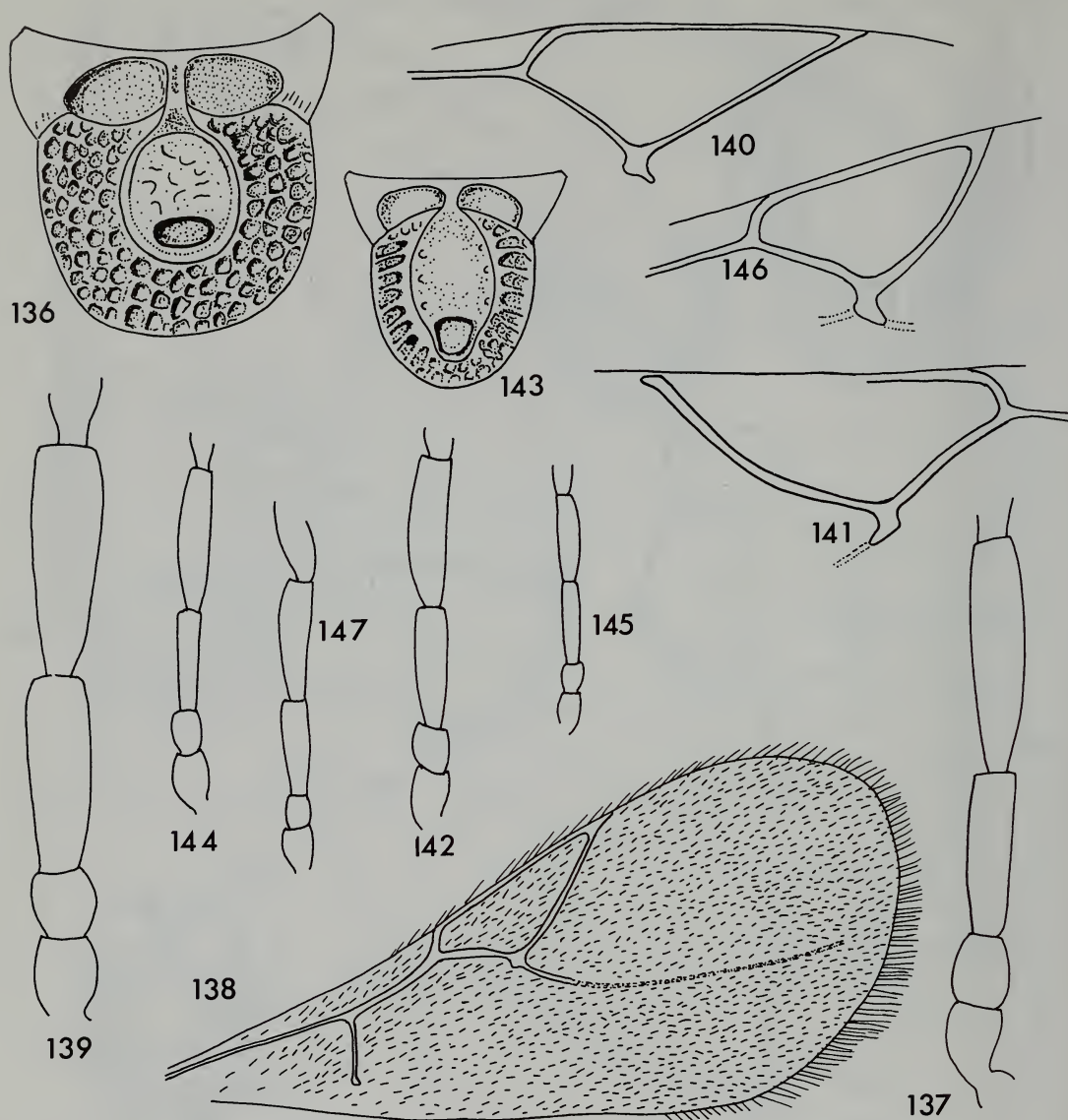


**Figs 120–126** 120, female antenna of *Leptopilina fannius*. 121, mesopleuron of *L. boulandi*. 122, radial cell of *L. atraticeps*. 123–125, scutellum of (123) *L. atraticeps*; (124) *L. heterotoma*; (125) *L. victoriae*. 126, mesopleuron of *L. heterotoma*.

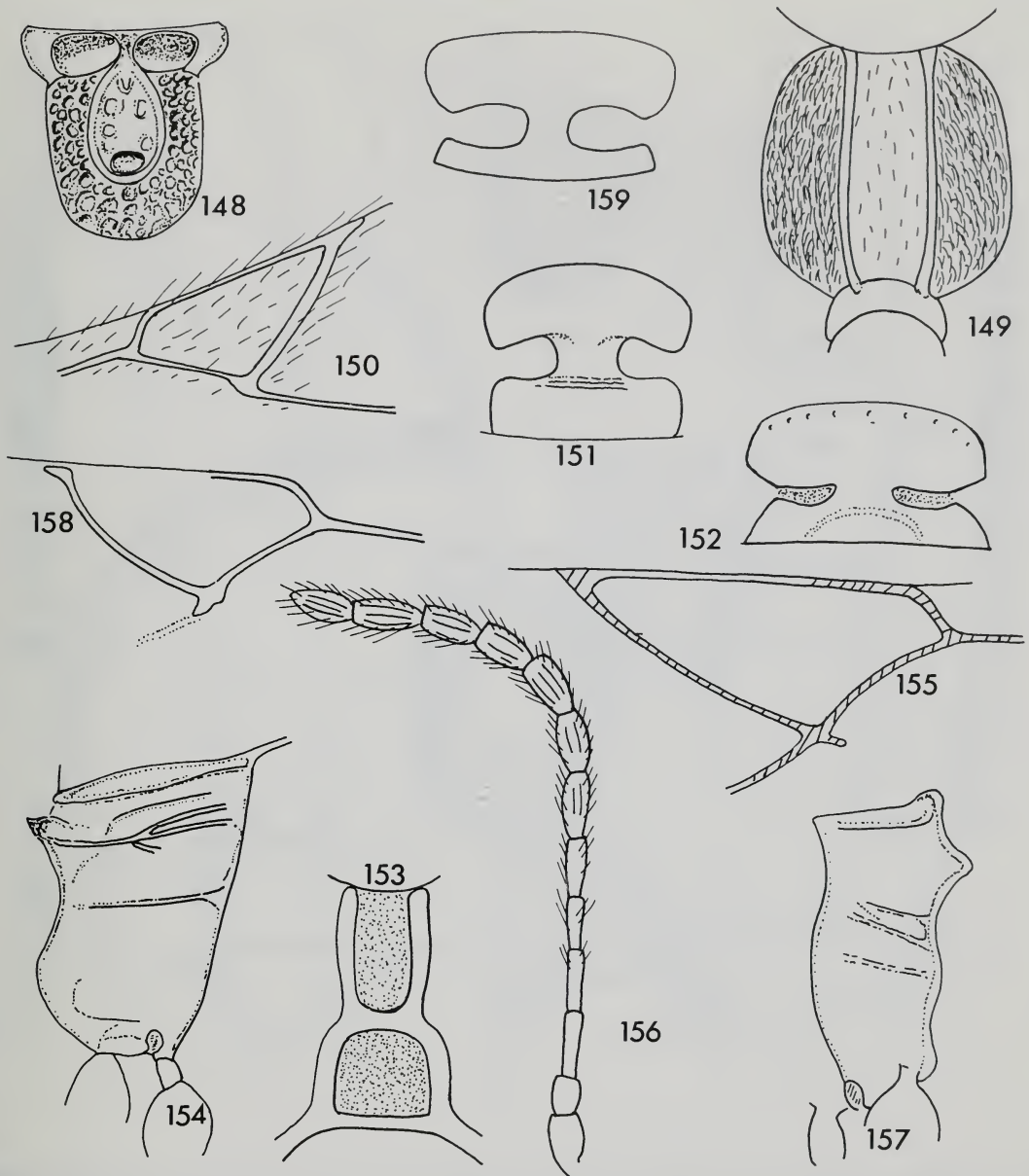




**Figs 127–135** 127, 128, *Leptopilina syphax* (127) scutellum; (128) radial cell. 129, 130, *L. pisonis* (129) radial cell; (130) mesopleuron. 131, mesopleuron of *L. victoriae*. 132, female antenna of *L. vesta*. 133, male antenna of *L. mahensis*. 134, mesopleuron of *L. syphax*. 135, scutellum of *L. fimbriata*.

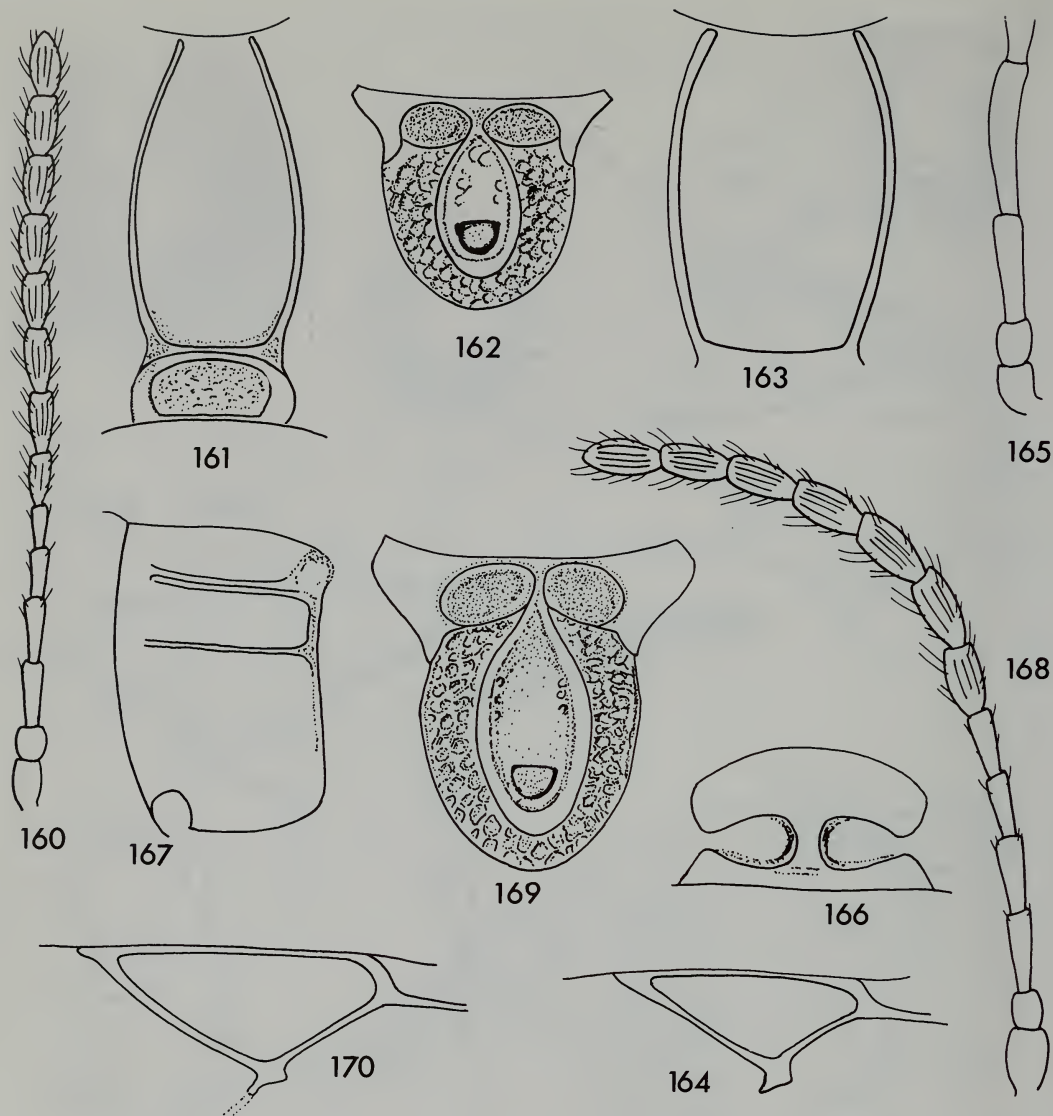


**Figs 136–147** 136, scutellum of *Leptopilina clavipes*. 137, 138, *L. fimbriata* (137) male antenna; (138) fore wing. 139, male antenna of *L. longipes*. 140, 141, radial cell of (140) *L. heterotoma*; (141) *L. misensus*. 142, male antenna of *L. syphax*. 143, scutellum of *L. fannius*. 144, 145, male antenna of (144) *L. fannius*; (145) *L. vesta*. 146, 147, *L. victoriae* (146) radial cell; (147) male antenna.

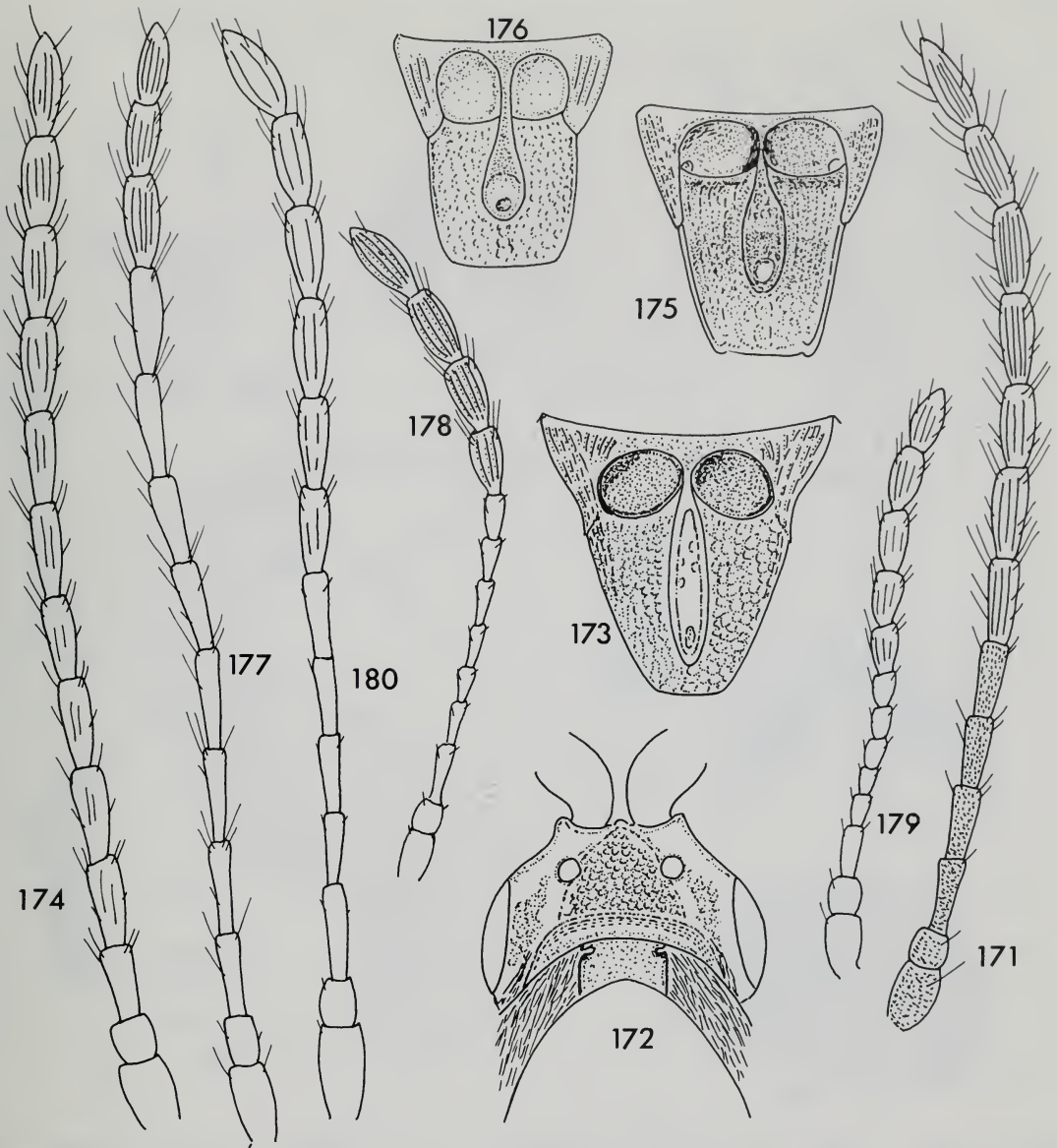


**Figs 148–159** 148–150, *Leptopilina apella* (148) scutellum; (149) propodeum; (150) radial cell. 151, 152, pronotal plate of (151) *L. atraticeps*; (152) *L. boulandi*. 153, propodeum of *L. boulandi*. 154–156, *L. fannius* (154) metapleuron; (155) radial cell; (156) female antenna. 157, 158, *L. faunus* (157) metapleuron; (158) radial cell. 159, pronotal plate of *L. apella*.

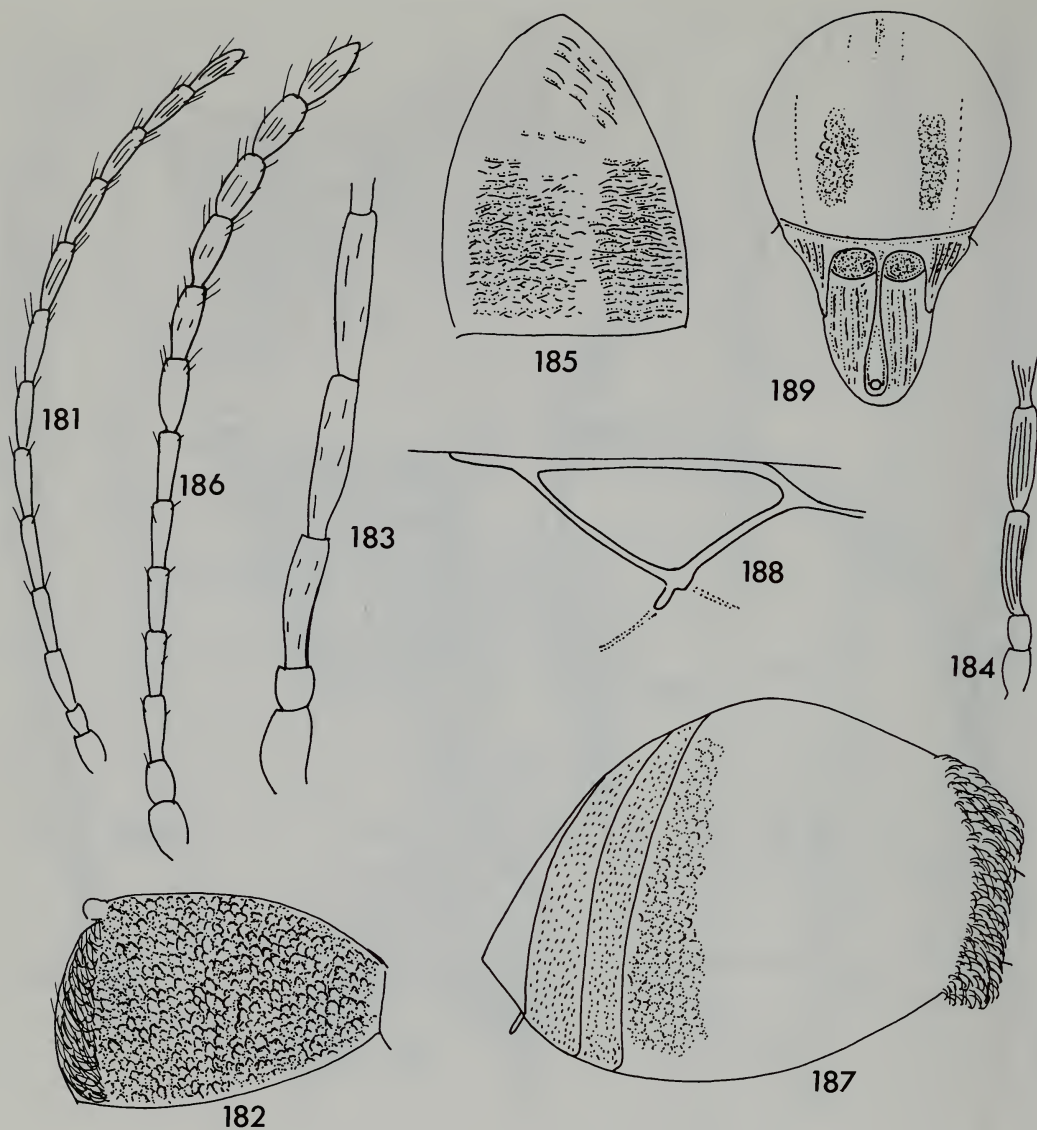




**Figs 160–170** 160, female antenna of *Leptopilina heterotoma*. 161, 162, *L. itys* (161) propodeum; (162) scutellum. 163, 164, *L. mahensis* (163) propodeum; (164) radial cell. 165–167, *L. misensus* (165) male antenna; (166) pronotal plate; (167) metapleuron. 168, antenna of *L. syphax*. 169, scutellum of *L. thetus*. 170, radial cell of *L. vesta*.

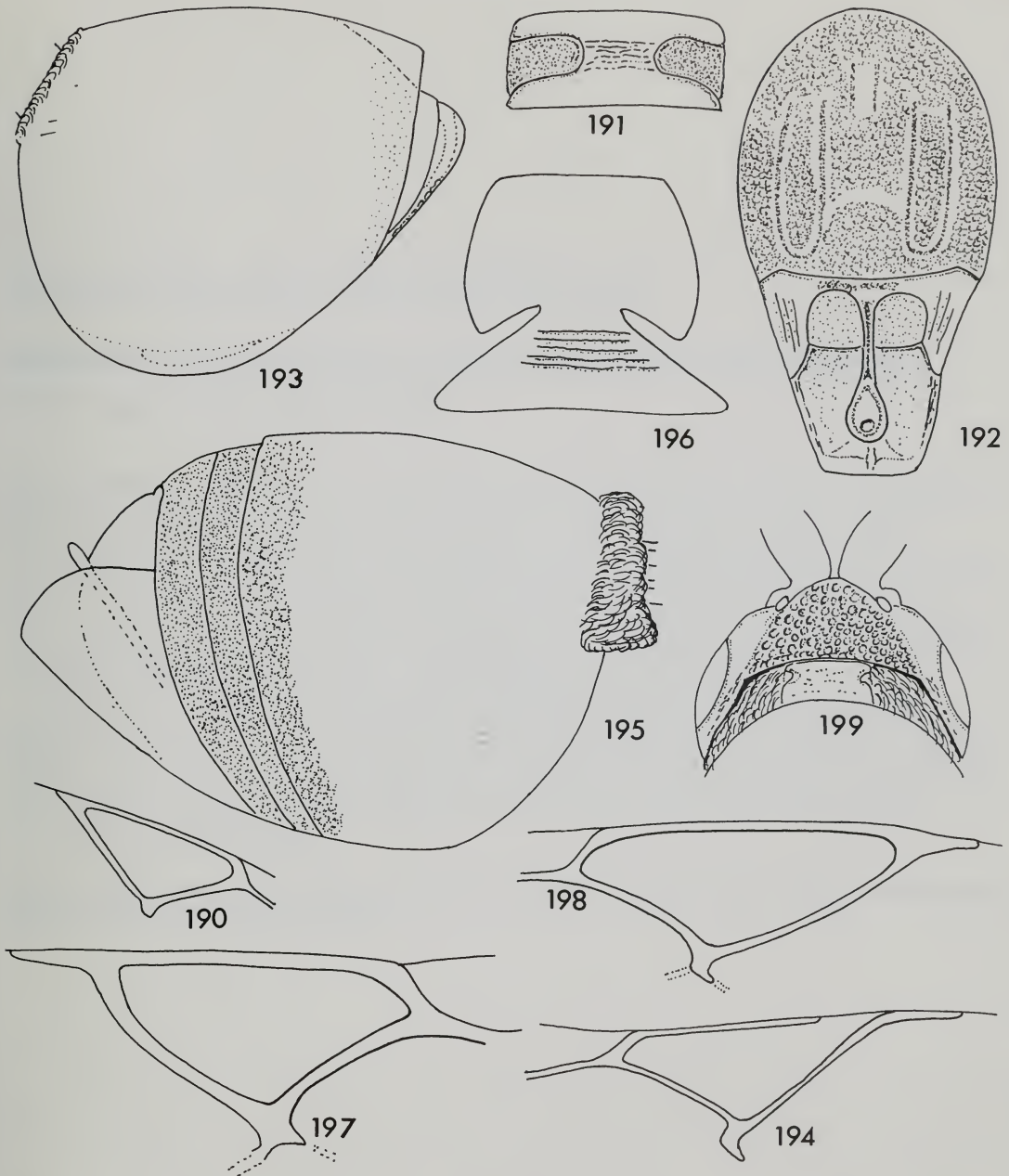


**Figs 171–180** 171–173, *Sirenes sinis* (171) female antenna; (172) vertex; (173) scutellum. 174, 175, *S. spio* (174) female antenna; (175) scutellum. 176, 177, *S. silenus* (176) scutellum; (177) female antenna. 178–180, female antenna of (178) *S. steropes*; (179) *S. orbilus*; (180) *S. syrinx*.



**Figs 181–189** 181, 182, *Sirenes syrtes* (181) female antenna; (182) mesopleuron. 183, 184, male antenna of (183) *S. syrinx*; (184) *S. syrtes*. 185, mesopleuron of *S. spio*. 186–188, *S. floccus* (186) female antenna; (187) gaster; (188) radial cell. 189, mesonotum of *S. orbilus*.





**Figs 190–199** 190, radial cell of *Sirenes orbilus*. 191–194, *S. silenus* (191) pronotal plate; (192) mesonotum; (193) gaster; (194) radial cell. 195, gaster of *S. sinis*. 196, pronotal plate of *S. spio*. 197, 198, radial cell of (197) *S. syrinx*; (198) *S. spio*. 199, vertex of head of *S. steropes*.